

ES&H manual

Environment, Safety, and Health

Volume I

Part 2: ES&H Management Requirements

2.1

Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management

(Formerly H&SM C1)

Recommended for approval by the ES&H Working Group

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New document or new requirements

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**Laboratory and ES&H Policies, General Worker Responsibilities,
and Integrated Safety Management***

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2.1

Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management

1.0 Introduction

The Department of Energy (DOE) Integrated Safety Management (ISM) System consists of seven general principles and five functions that form the basis for how work is to be performed by DOE contractors such as the Laboratory. The five functions are fully described in Document 2.2, "Managing ES&H For LLNL Work," in the *ES&H Manual*. This document implements the first four of the seven general ISMS principles (listed below) by defining the responsibilities of LLNL management and workers, subcontractors, and federal and local agencies with regard to LLNL operations.

1. Line Management is responsible for safety. (Safety is used synonymously with environment, safety, and health (ES&H) to encompass protection of the public, the workers, and the environment.)
2. Clear roles and responsibilities are established and maintained.
3. Personnel possess competence commensurate with responsibilities.
4. Resource allocations are balanced, making ES&H a priority in project planning and execution.
5. Safety standards and requirements are identified and implemented.
6. Hazard controls are tailored to the project work.
7. Operations are authorized before work begins.

In addition to these ISM principles, the Laboratory also has a fundamental guiding principle. Workers, supervisors, and managers are directly responsible for ensuring their own safety and promoting a safe, healthful, and environmentally sound workplace and community.

This document contains:

- LLNL's work philosophy, goal, and policies, and ES&H policy for work activities conducted onsite and offsite.
- Roles and responsibilities of workers, managers, and supervisors, ES&H support organizations, and administrative groups.
- Roles, responsibilities, and authorities for work.

- Responsibilities of external organizations (University of California, the Department of Energy, and other regulatory agencies).
- A summary of the ISMS principles #5, 6, & 7 and the five ISMS functions which are described in Document 2.2.
- Handling imminent and substantial danger situations.
- Employee ES&H rights and responsibilities.
- Required work standards.

All workers should be familiar with the information contained in sections 2.0, 3.0, and 8.0. The balance of the document is written primarily for managers, supervisors, principal investigators, and Responsible Individuals (RIs). See the *LLNL ISMS Description* for a more detailed introduction to ISMS.

2.0 Laboratory Safety Philosophy, Goal, and Policies, and Environmental, Safety, and Health Policy

It is the Laboratory's ES&H policy to perform work in a manner that protects the health and safety of employees and the public, preserves the quality of the environment, and prevents property damage. The environment, safety, and health are to be priority considerations in the planning and execution of all work activities at the Laboratory. Furthermore, it is the policy of LLNL to comply with applicable ES&H laws, regulations, and requirements.

2.1 Philosophy

The Laboratory's safety philosophy includes the following concepts:

- Safety is our most important day-to-day consideration as we carry out our technical missions.
- Accidents are preventable through attention to hazards and appropriate action by each individual and the responsible organization.
- Managers and supervisors are responsible for ensuring that an adequate system is in place to carry out work safely. For each work activity, an identifiable line management chain¹ is ultimately responsible.

¹ The management chain extends from the worker, through the first level supervisor, up to the responsible AD or equivalent.

- Each supervisor is expected to ensure that all individuals reporting to him/her understand the safety expectations, governing work controls, and the means by which they can safely and successfully perform their assignments.
- Each individual is directly responsible for ensuring his/her own safety and the safety of others who could be impacted by his/her actions by promoting a safe, healthful, and environmentally sound workplace and community.
- All members of the workforce are held accountable for meeting the Laboratory's ES&H requirements and expectations.

2.2 Goal

The Laboratory's safety goal is to continuously strive for a healthy, accident free, and environmentally sound workplace and community while providing the scientific and technical excellence needed to meet national missions.

2.3 Laboratory ISM Policy

The Laboratory's ISM policy is as follows:

- All workers shall:
 - Understand the Laboratory's safety goal and participate in its pursuit.
 - Determine, in concert with others, the best way to achieve this goal while conforming to Laboratory requirements.
 - Utilize appropriate resources at their disposal.
 - Ask for help when necessary to ensure a safe work environment while performing their job responsibilities and pursuing their technical, administrative, or craft objectives.
- Managers and supervisors shall:
 - Establish clear technical, administrative, craft, and ES&H goals.
 - Assign specific responsibilities and tasks to workers.
 - Appropriately define and manage ES&H issues.
 - Provide required resources, including qualified people, space, equipment, time, and funds, to accomplish work objectives safely.
 - Ensure compliance with all ES&H rules and regulations.
 - Monitor and evaluate workers' performance and reward or discipline workers accordingly.

- To achieve the safety goal, work at LLNL shall be done following the *ES&H Manual* with the direct assistance and support of the ES&H Teams and the subject-matter experts.
- Organizations with approval authority and their management chain shall ensure that all work under their purview is conducted safely.
- Directorates shall ensure that all work activities are performed consistent with requirements and expectations specified in the latest approved version of the *LLNL ISMS Description*, UCRL-AR-132791.

2.4 Other ES&H Policies

All work conducted at LLNL is governed by the following additional ES&H policies:

- Laboratory ES&H Objectives.
- Waste Minimization Policy.
- Plant, Facility, and Equipment Maintenance Policy.
- Policy for Decontamination and Decommissioning of Facilities.
- LLNL Training Policy.
- Quality Assurance Policy.
- LLNL Metrology / Calibration Policy.
- Onsite Traffic Safety Policy.
- LLNL Policy on Public Participation in ES&H Issues.
- Policy on Triennial Review of the ES&H Independent Review System.
- Aviation Safety Policy.
- Radiological As Low As Reasonably Achievable (ALARA) Policy.

These policies are signed by the Director or the Deputy Director for Operations (DDO) and supplement the Laboratory's primary policy. All policies are available electronically at

http://www.llnl.gov/llnl_only/es_and_h/policies.html.

Institutional policy, requirements, and guidance are developed using committees composed of directorate personnel. The DDO oversees these committees. The ES&H Working Group (ES&H WG) is one such committee.

The Laboratory's work is accomplished in accordance with the LLNL *ES&H Manual* and the Work Smart Standards identified for the specific work and associated hazards. The purpose of the Laboratory's safety documents (manuals, plans, and procedures) is to enable all workers, subcontractors, and visitors to work safely. The authors and approving authorities of safety documents are responsible for ensuring that instructions are workable and understandable to the individuals performing and managing the work. The authors and the authorizing and concurring organizations are likewise responsible for ensuring that the safety documents are consistent with applicable rules, regulations, and requirements. Safety documents are to be readily available to all individuals who need access to the information.

3.0 Responsibilities of LLNL Workers and Organizations (Principles 1–4)

This section contains general work responsibilities for all Laboratory workers and managers. The ES&H management (not the line management) structure is depicted in Fig. 1. More specific responsibilities can be found in applicable documents of the *ES&H Manual*.

The Laboratory believes that accidents are caused by unsafe conditions and unsafe acts and that they are preventable through attention to hazards and appropriate action by each individual and the responsible organization. It is the responsibility of all Laboratory workers to perform work safely and in accordance with the Laboratory's ES&H policies listed in Section 2.4, the controls in the *ES&H Manual*, and any requirements from LLNL's Work Smart Standard set as identified by subject-matter experts. Workers are accountable for their own safety as well as the safety of others who could be affected by the work being performed. Certain organizations and managers have specific responsibilities for carrying out ES&H-related activities. Employees who perform management functions have increased ES&H obligations, in that they are responsible for their own actions and for the activities and actions of those who work for them. Managers may delegate ES&H authority to others in their management chains; however, the responsibility and accountability for ES&H performance and assurance is not delegable.

The execution of LLNL's ISM is a distributed task, that is, the Director's Office and each Laboratory directorate integrates applicable elements, including self assessment, of ISM into its work activities. The responsibility for implementing ISM rests with the management chain responsible for the work activity and its workers.

- The management chain is responsible for implementing the ES&H program. Responsibility is delegated from the Director to the Associate Directors (ADs), through each AD's management chain to each worker.

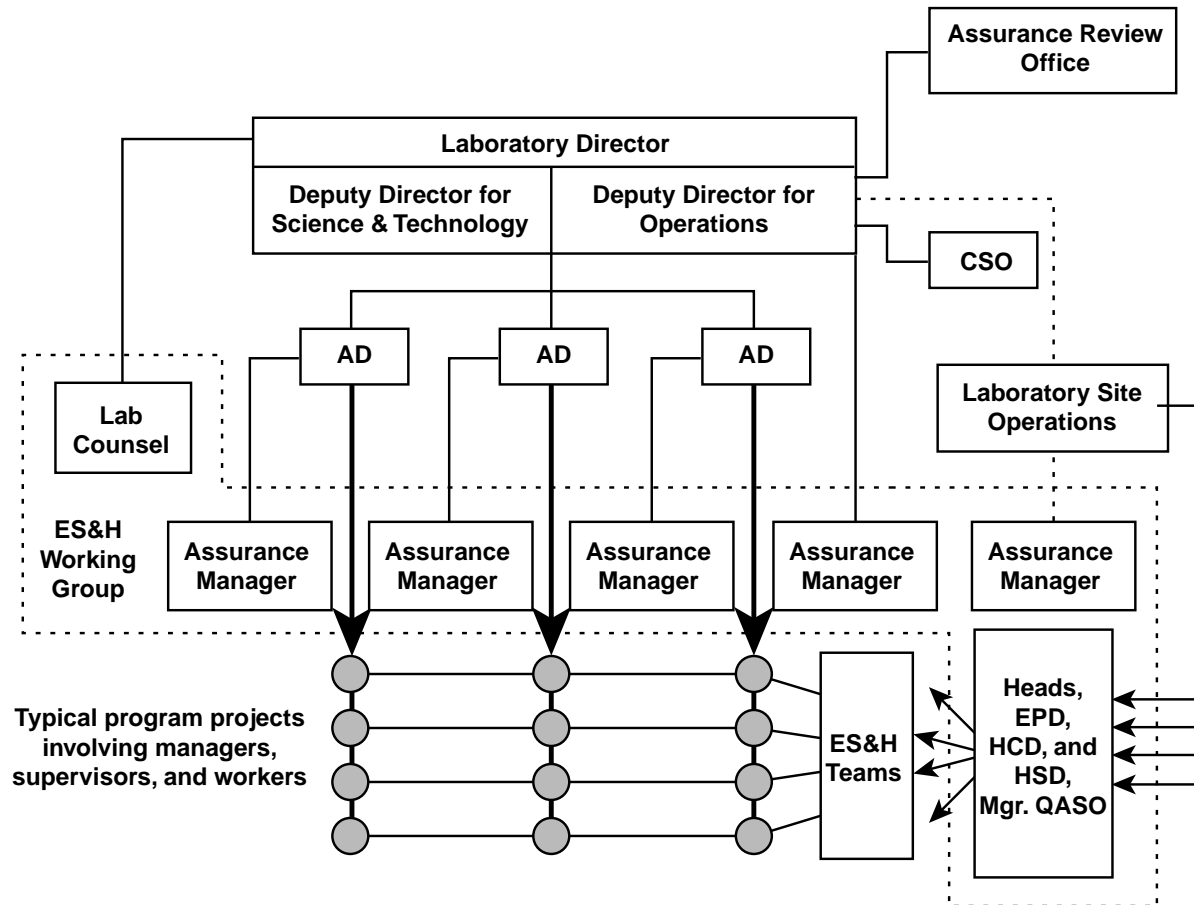


Figure 1. Support structure of the ES&H organizations, ES&H Teams, and Laboratory organizations.

- The DDO advises the Director on ES&H policies and institutional issues, with input from Laboratory Site Operations (LSO), the Council for Strategic Operations (CSO), and the ES&H Working Group (ES&H WG), and oversees the effectiveness of activities and programs to implement these policies.
- The Assurance Review Office (ARO) performs institutional level oversight of ES&H program implementation by the directorates.
- The Assurance Managers, who report to their AD, provide assurance of ISM implementation at the directorate level.
- Managers conduct self-assessments of their operations.

All workers are responsible for:

- Knowing the ES&H plans, controls, and requirements of their assignments and the potential hazards, and emergency plans and procedures for the work area.

- Successfully completing all required training and, if applicable, participating in personnel assurance programs (Document 50.2, "Personnel Assurance Program," and Document 50.3, "Personnel Security Assurance Program," in the *ES&H Manual*), and health monitoring programs.
- Performing work assignments in accordance with requirements listed in the Laboratory's *ES&H Manual*, established safety plans and procedures, and additional input from subject matter experts consistent with the Work Smart Standards set. Performing work assignments in accordance with these requirements ensures compliance with the Laboratory's Work Smart Standards. Workers are only to perform work for which they are trained or qualified.
- Only performing work that has been authorized. Note that work commonly performed by the public (see Document 5.1, "ES&H Glossary," in the *ES&H Manual*), may be self-authorized, so long as all applicable controls are followed.
- Immediately correcting or informing the responsible manager of ES&H-related problems. If a satisfactory response is not received, then the senior manager for the organization should be contacted, and then the Laboratory Site Manager.
- Warning fellow workers and visitors of hazards and defective equipment.
- Requesting that work be stopped if it is observed that an operation presents an imminent or substantial danger to health, safety, or the environment. Each worker is empowered to stop his own work if there is an unsafe or unapproved condition. Section 7.0 contains more details on stopping work.
- Reporting work-related injuries and illnesses to their supervisors and to Health Services.
- Keeping their exposures to radiation, toxic materials, and other such agents as low as reasonably achievable.
- Consulting their managers for guidance when they are uncertain about any ES&H-related work requirements.
- Bringing to the attention of their supervisors opportunities for improvement associated with the work or governing procedures.

The specific roles, responsibilities, and authorities assigned to managers are provided in the following sections.

3.1 General Roles, Responsibilities, and Authorities for Managers

The roles, responsibilities, and authorities (RRAs) in this section apply to all managers in general. Additional RRAs are assigned to individual managers, and are listed in the following sections.

Managers (i.e., the Director through work supervisors) are responsible for the overall safety of their activities. They must be familiar with the work and associated hazards within their responsibility, Laboratory's ES&H policies, laws and regulations, and other requirements applicable to their work areas and support organizations.

Furthermore, managers and work supervisors are responsible for:

- Informing workers of all workplace health and safety hazards and their associated controls and requirements, and ensuring that they receive training commensurate with identified hazards.
- Ensuring that their workers adhere to the ISM principles and implement the ISM functions.
- Ensuring that competent people plan, design, operate, maintain, and decommission experiments and facilities, and characterize and handle hazardous waste.
- Ensuring that workers:
 - Are trained and qualified.
 - Are physically capable and medically certified or participate in medical surveillance, as necessary.
 - Are assigned work that reflects their position description.
 - Report all work-related injuries and illnesses to Health Services.
 - Have and use the necessary hardware (equipment, materials, and facilities) to safely carry out specified tasks.
- Performing an ES&H evaluation when planning a new activity or changing existing activities (Document 2.2 contains details).
- Maintaining training, qualification, and certification records for all workers.
- Preparing or obtaining:
 - Adequate safety plans and procedures, work procedures, maintenance plans, material safety data sheets (MSDSs), and permits prior to starting an activity.
 - Self-help plans and emergency response procedures for operations and facilities for which they are responsible.

- Ensuring that the work is performed in accordance with the defined work controls and that work does not begin before it is authorized. Work may be authorized in phases: some work may proceed while hazards are being assessed and controls implemented.
- Ensuring that hazardous waste is properly characterized, accumulated, stored, and handled, according to the requirements in Document 36.1, "Waste Management Requirements," in the *ES&H Manual*.
- Verifying that visitors, guests, students, and vendors either have the training necessary prior to entering certain Laboratory areas or are escorted by an individual who has the required training. Managers are to provide an adequate level of supervision to visitors, guests, students, and vendors who perform work activities to ensure all applicable work controls are followed.
- Integrating the As Low As Reasonably Achievable (ALARA) philosophy for safety into their operations. ALARA is an approach to manage and control individual and collective exposures to workers and the general public from harmful chemicals and radiation to levels as low as is reasonably achievable, taking into account social, technical, economic, practical, and public policy considerations. The ALARA philosophy shall be applied to operations involving radiation, toxic materials, carcinogens, and other materials hazardous to workers, the public, and the environment.
- Reviewing work that has been authorized and improving safety practices and project efficiency.
- Implementing a self-assessment program in accordance with their directorate's plans and procedures, and ensuring that the necessary corrective actions are carried out.
- Reporting injuries and illnesses to Health Services.
- Implementing a Return-to-Work Program in accordance with their directorate's plans and procedures.
- Notifying the cognizant senior manager of occurrences and incidents in accordance with Laboratory notification and reporting requirements, and taking appropriate action to correct situations to prevent a recurrence.

Subject-matter experts from ES&H and quality assurance (QA) organizations (Environmental Protection Department, Hazards Control Department, Health Services Department, and the Quality Assurance Support Office and Engineering Departments) are available for assistance.

When unique issues or special cases arise that are not articulated in this document, they are to be addressed by the identified management chain and taken to the responsible AD for resolution and then, as necessary, to the DDO.

3.2 Laboratory Director's Office

The **Laboratory Director** is responsible for:

- Ensuring that the ES&H are a priority at the Laboratory.
- Approving institutional ES&H policies.
- Assuring that implementation and the overall effectiveness of the Laboratory's ES&H Program comply with applicable laws and regulations and Contract W-7405-ENG-48 (Contract 48) requirements.
- Fostering open communication on ES&H matters with the Laboratory's workers, the public, and external agencies.

The Director may delegate ES&H authority to executives, senior managers, or other LLNL employees. However, the responsibility and accountability for ES&H performance cannot be delegated.

Deputy Director for Operations. The DDO has been delegated authority for conducting LLNL's ES&H Program. This includes:

- Assisting the Director with ES&H and Laboratory-wide business and administrative and operational activities.
- Assuring satisfactory achievement of the performance measurement goals specified in Appendix F of Contract 48.
- Approving institutional ES&H requirements and guidance.
- Requesting exemptions and variances from statutory requirements from the appropriate authority.
- Independently overseeing institutional ES&H activities. (The Assurance Review Office assists the DDO with this function.)
- Assuring that ES&H concerns and priorities are communicated as core values during interactions with DOE, Laboratory management, and workers.
- Resolving ES&H issues that cannot be resolved at the AD level.
- Managing responses to and tracking the corrective actions for Laboratory-wide ES&H and QA appraisals, assessments, audits, and inspections performed by the DOE, UC, and other agencies.

3.3 Associate Directors

The Laboratory Director has assigned to ADs primary authority and responsibility for conducting work and implementing the Laboratory's ES&H policies. In carrying out this responsibility, ADs can simultaneously function in one or more of the following roles:

- Program AD—Responsible for carrying out program operations.
- Facility AD—Responsible for operating and maintaining the assigned facilities (buildings or areas).
- Payroll AD—Responsible for assigning employees on his/her payroll account to program or facility operations and maintenance or service tasks.
- Services AD—Responsible for managing services for other ADs. This may include assigning workers, with the necessary tools and equipment, to perform the services.

Associate Directors shall ensure that legal, regulatory, and contractual ES&H requirements applicable to their operations and facilities are carried out. They shall ensure that self-assessments are conducted of the directorate operations and facilities to verify the effectiveness of ISM implementation. ADs shall ensure that ES&H performance is a meaningful part of each employee's annual performance appraisal and a factor in determining ranking.

Each Directorate shall have an approved ISMS Implementation Plan that illustrates how the requirements specified in the *LLNL ISMS Description* are satisfied. Once a directorate has implemented ISM, they may retire their implementation plans and use other directorate documentation to carry forward their directorate-specific requirements. However, each directorate shall maintain the matrix from their Directorate Implementation Plans that shows how each of the core requirements identified in Sections 4, 6, 7, 8, 9, and 12 of the *LLNL ISMS Description* are implemented within their directorates.

Associate Directors exercise the authorities listed below. ADs may delegate ES&H authority to managers in their organizations. However, they remain accountable to the Laboratory Director for ensuring that ES&H activities are performed in accordance with LLNL requirements. ES&H-related authority includes:

- Approving resource allocations for work activities (i.e. programmatic, facility or service) and ensuring adequate funding is available for ES&H-related requirements associated with those work activities.
- Ensuring that a work activity cannot proceed without a reasonable expectation that there will be sufficient resources to ensure safety requirements are satisfied over the length of the project including close-out activities.

- Approving directorate-level ES&H plans and procedures, occurrence reports, ES&H self-assessment plans, and other appropriate ES&H documents.
- Designating the management level(s) with authorization to conduct the various reviews and to authorize work.
- Appointing an Assurance Manager to assure that work managed by the directorate is in accordance with applicable ES&H requirements.
- Coordinating responses to ES&H-related incidents.
- Generating reports required by Laboratory ES&H policies.
- Incorporating lessons learned into directorate work activities.
- Recording, analyzing, tracking, and correcting safety-related problems, deficiencies, and occurrences associated with their operations and facilities.
- Ensuring that serious safety-related incidents are reported and that formal reviews are conducted and addressed consistent with the provisions of the *ES&H Manuals*. For incidents in nuclear and radiological facilities and activities, the PAAA Office is to be involved, as appropriate.
- Ensuring that root cause analyses are performed for occurrences, formal incident analyses, and other safety-related issues deemed appropriate by the Directorate.
- Ensuring that operations are conducted safely and comply with applicable Laboratory ES&H requirements.

Program AD. Program ADs are responsible for ensuring the following:

- Laboratory ES&H policies are integrated into program plans and activities, and that the activities comply with applicable ES&H requirements.
- Required ES&H documentation is prepared and maintained.
- Training requirements are documented. The Program AD shall notify the Payroll AD of program-specific training requirements.
- Appropriate Operational Safety Plans (OSPs) and procedures are prepared and followed and programmatic activities follow applicable Facility Safety Plan (FSP) requirements.
- Assuring that the proper job-related ES&H training has been taken by personnel assigned to the work activities they manage.

Facility AD. The Facility AD is responsible for ensuring the following:

- Operations within the facility are conducted within the facility safety envelope and comply with facility requirements.
- Required ES&H facility documentation is prepared and maintained.
- Facility-specific training requirements are identified, documented, and provided in a timely manner to workers and managers. The Facility AD shall notify the Payroll AD of facility-specific training requirements.
- The appointment of an appropriate number of Facility Points of Contact (FPOCs) for his/her facilities.

Payroll AD. The Payroll AD shall:

- Ensure that personnel on the directorate payroll account have the appropriate base skills to perform their jobs.
- Assure that personnel receive the training necessary to maintain those skills; complete job-specific training as specified by Program and Facility ADs; and meet all personnel assurance requirements imposed by the institution, programs, and facilities.
- Maintain training records of all personnel on the directorate payroll account. The LTRAIN database is used for this purpose.
- Perform injury and illness case management activities for their workers.

Services AD. The Services AD functions like a Payroll AD, except that they have additional responsibility for managing the ES&H activities associated with the services they provide. See Section 4.3 for further details.

Laboratory Site Manager for Laboratory Site Operations (LSO). The Laboratory Site Manager reports to the DDO and has the AD responsibilities described above. As the Laboratory's senior manager for ES&H technical support, the Site Manager is also responsible for the following:

- Providing the necessary ES&H and QA expertise, guidance, and services to assist ADs and their management chains with implementation of the Laboratory's ES&H policies. This includes maintaining a staff of ES&H professionals to monitor the work environment, interpret and document ES&H requirements applicable to LLNL work, and provide feedback on implementation of these requirements.
- Providing ES&H institutional planning and technical support to the directorates workers.

- Designating the ES&H Functional Manager, who assures that the Laboratory is in compliance with DOE and Contract 48 ES&H related directives and issues and resolves ES&H-related performance issues.
- Developing and issuing the institutional ES&H Management Plan as well as other institutional ES&H planning and budget documents.
- Preparing annual budgets for overhead-funded institutional ES&H activities.
- Maintaining knowledge of current DOE orders, regulatory requirements, codes, and standards.
- Ensuring that appropriate implementation guidance is issued.

3.4 Authorizing Organization

The authorizing organization ensures that the seven general ISM principles and five functions are used in the performance of the work that they manage. The authorizing organization (also see Section 4.0) and the management chain it establishes are responsible for:

- Defining the scope of work.
- Defining the tasks to be performed.
- Identifying the facility in which they would like the work to take place.
- Identifying the individuals serving in the management chain, including the individual responsible for authorizing the work.
- Identifying the specific person(s) who will be supervising the work. This person is referred to in this document as the Responsible Individual.
- Ensuring personnel within the management chain have clearly defined roles, responsibilities, and authorities.
- Allocating sufficient resources (qualified people, space, equipment, time, and funds) to each work element to ensure safe, efficient, and compliant operations.
- Ensuring that the hazards associated with the work activity are identified and analyzed, consistent with the *ES&H Manual*.
- Ensuring that new work is covered by Work Smart Standards (WSS).
- Ensuring that the greater the hazards associated with an activity, the more rigorous the analysis to identify the work controls necessary to manage the work.

- Ensuring that workers have the skills, knowledge, and abilities (SKA) to evaluate the level of risk associated with a work activity (i.e., know how to determine if the activity is commonly performed by the public) or know who can make that determination.
- Ensuring that all individuals consider the safety implications of their actions, whether or not a formal hazards analysis and documentation are required.
- Soliciting worker feedback and involving workers in analyzing hazards and developing controls, safety plans, and operating procedures.
- Implementing appropriate controls to address the hazards identified during the hazards analysis steps, and as identified by requirements in the *ES&H Manual* and the Work Smart Standards. The ES&H Team and subject matter experts will assist in identifying applicable controls from the Work Smart Standards that are not explicitly documented in the *ES&H Manual*.
- Approving the work controls and ensuring that quality assurance principles and processes as described in the *ES&H Manual* are incorporated and used appropriately.
- Ensuring that workers have the SKA and physical capability to apply the required work controls and perform the assigned work safely.
- Ensuring that the proposed work falls within the established safety envelope for the activity and facility.
- Ensuring that applicable Lessons Learned that are maintained on the LLNL website are considered during the process of authorizing work.
- Conducting a prestart review when required and as defined in the *ES&H Manual*.
- Authorizing the defined work subject to the implementation of the appropriate controls.
- Performing the work.
- Monitoring the work activity to ensure that it is performed safely, in conformance with applicable institutional, facility, and activity controls, and within the defined budget.
- Periodically reviewing the hazards and the adequacy and effectiveness of the engineered and administrative controls for the work activity.
- Using medical surveillance examinations, as appropriate, to assess the impacts of work on employee health.

- Reviewing Lessons Learned maintained on the LLNL website and incorporating them into each authorizing organization's self-assessment program to ensure continued utilization of relevant Lessons Learned.
- Analyzing, tracking, and correcting safety-related problems and deficiencies associated with operations and facilities.
- Suspending affected parts of operations when the activity's operating limits and/or controls are not being followed, or when observation and competence indicate that people, property, or the environment are at imminent or substantial danger of being hurt or damaged. The work shall be suspended until appropriate remedial actions are taken.
- Contribute feedback and lessons learned to their Assurance Manager.

3.5 Work Supervisors (Responsible Individual)

The Responsible Individual is responsible for:

- Identifying the various skills, knowledge, abilities, and the qualification requirements, including training and medical certifications (if any), for performing the work activity.
- Ensuring that the personnel supporting their activities have the required safety training, including specific facility training, or that they work under the direct supervision of a trained individual.
- Identifying the individuals with the qualifications and training necessary to perform the work.
- Ensuring that roles, responsibilities, and authorities of personnel performing the work are clearly defined and making that information readily accessible to others.²
- Ensuring that requirements necessary to carry out the work are identified and communicated to those performing the work. This includes taking steps to ensure that each worker is knowledgeable of the governing procedures, including required operating limits and work controls.
- Ensuring that the training necessary to do the assigned work is identified and communicated to the Payroll organization.
- Ensuring that the specific hazards for the work are clearly communicated to the staff involved in the activity.

² Specifics of how this information is to be communicated within each Directorate are described in the Directorate ISM Implementation Plan.

- Ensuring that tailored controls (including the engineered and administrative controls) are developed and implemented for each hazard associated with the work activity consistent with the requirements in the *ES&H Manual* and Work Smart Standards with input from subject-matter experts.
- Ensuring that workers have immediate access to the work activity's governing procedures and safety documents.
- Ensuring that work is performed in accordance with the safety controls specified as part of the work authorization process.
- Signing or ensuring that qualified personnel sign hazardous waste requisitions for hazardous waste generated by the work activity (see the *Waste Acceptance Criteria*).
- Signing or ensuring that qualified personnel sign hazardous materials shipping forms when these materials must be shipped by the work activity.
- Monitoring the work activity to ensure that the governing procedures and safety documents are being followed, and, as appropriate, strengthening the work activity's safety performance.
- Periodically reviewing the hazards and the adequacy and effectiveness of the engineered and administrative controls for the work activity.
- Suspending affected parts of operations when the approved work activity authorization or the facility operations authorization has been exceeded, the operating limits and/or controls are not being followed, or when observation indicates that people, property, or the environment are in imminent or substantial danger of being hurt or damaged. The work shall be suspended until appropriate remedial actions are taken.
- Contributing feedback and lessons learned to their ES&H Assurance Manager.
- Balancing the management of ES&H issues with project concerns (e.g., deliverables, milestones), other work in progress, and the risks associated with the new activity. ES&H costs need to be included in the budget and adjusted to ensure safety considerations are met, particularly if there is a short time schedule for completing the work. Sufficient resources, including qualified people, space, equipment, time, and funds, need to be allocated for engineering design and maintenance of equipment and systems.

3.6 ES&H Assurance Managers

Each AD appoints an ES&H Assurance Manager who is responsible directly to the AD for the following:

- Providing independent ES&H oversight of directorate organizations, activities, and facilities to assure proper implementation of the ES&H Program. (In this context, "independent" means that the Assurance Manager is not in the direct line of authorization or management of the activities being evaluated. When this condition is not met, there shall be a separate independent evaluation of the activity to eliminate any potential conflict of interest.)
- Addressing and resolving institutional and cross-directorate ES&H policy issues through participation in the ES&H Working Group.
- Assisting in the development of the directorate ES&H plans and procedures for approval by the AD.
- Assessing the implementation of ISM within the directorate.
- Supporting the Contract 48 ES&H Performance Measure Process by either providing or coordinating the input data for the Performance Measures, and integrating them into the Directorates' ES&H performance metrics.
- Advising line managers and work supervisors of changes to institutional ES&H requirements and guidance, and suggesting implementation options.

Assurance Managers are the primary directorate contact with the Assurance Review Office (ARO) and for external ES&H audits and assessments.

3.7 AD Facility Managers

AD Facility Managers are appointed by the Facility AD and are responsible for the following ES&H related activities:

- Ensuring that LLNL facilities are operated and maintained in a safe and efficient manner.
- Preparing FSPs, reviewing and concurring with the approval of OSPs; and implementing facility-related requirements specified in OSPs, FSPs, and Laboratory *ES&H Manual*.
- Assuring that workers working within the facility comply with facility-specific requirements, including training requirements.
- Participating in the self-assessment plan for the facility and ensuring that the necessary corrective actions are taken.

- Reviewing ES&H Integration Work Sheets (IWS) (see Document 2.2) for compliance with facility related requirements, (e.g., those in the *ES&H Manual*, FSPs, Technical Safety Requirements, OSPs) and ensuring compatibility between different operations within a given facility.
- Evaluating proposed operational or activity changes against the facility's existing ES&H documentation (e.g., the authorization basis).
- Communicating facility-related ES&H requirements to building residents and visitors, as appropriate.

The training requirements for AD Facility Managers are listed in Appendix E. Appendix E also shows the relationships between the ADFM, FPOC, and other personnel who may support them. Delegations shall be in writing.

3.8 Facility Points of Contact

Facility ADs are responsible for ensuring that a Facility POC is appointed for each of their facilities. The AD Facility Manager may set limits for the types of work, level of complexity, or level of hazard for which the Facility POC may concur. The AD Facility Manager shall be the concurring official for work above those levels. The Facility POC is responsible for the following:

- Act as the interface between personnel who will be working in the facility and Facility Management.
- Concurring that the work can be safely performed in the facility.
- Identifying hazards associated with the work location and communicating them to the responsible work management chain.
- Establishing and appropriately communicating to facility residents and the responsible management chain any facility controls and special conditions, including unacceptable collateral effects, that might be associated with the proposed work.
- Coordinating utility and building system shutdowns with building occupants to ensure that ongoing operations are not unduly disrupted.
- Coordinating system status procedures, if applicable.
- Maintaining building ventilation systems.
- Participating in the pre-start review of the work, when one is conducted.
- Evaluating proposed operational or activity changes against the facility's existing ES&H documentation (e.g., the authorization basis).

- Concurring that work may proceed in that building, prior to it beginning.
- Monitoring work activities to assure that there is no hazard or unacceptable collateral effects to the facility or other occupants.
- Ensure that post-maintenance testing is performed to verify that the equipment functions properly. This is particularly important for safety systems, structures, and components.
- Contribute feedback and lessons learned to line management and service organizations.

Typically, when the work to be conducted is related to facility modifications, construction, maintenance of facility systems, or permanent installations, the Facility POC will also act as the "client" for the service provider. The Facility POC may be the Responsible Individual for vendor personnel performing services in the facility under a subcontract that is not sponsored by a service providing organization such as LSO or Business Operations and where the subcontractor is paid through use of the service recipient's account number.

The prerequisites and training requirements for Facility POC are listed in Appendix E.

3.9 Organizations with Specific ES&H Responsibilities

Council for Strategic Operations

The CSO is composed of LLNL's Deputy Directors and nine ADs and is chaired by the DDO. Within the CSO's broad operations policy review scope, there is an ES&H subset that is an essential element of integrated safety management. This subset consists of the following CSO functions:

- Periodically reviewing ES&H policy and recommending changes, as appropriate.
- Reviewing and resolving major ES&H issues.

ES&H Working Group

The ES&H Working Group (which reports to the DDO) is composed of Assurance Managers from each directorate, the four heads of the ES&H and QA technical support organizations, and (as non-voting members) representatives from the Legal Office. The chairperson of the group is selected by the DDO on a calendar year basis.

The ES&H Working Group approves most institutional-level ES&H implementation documents containing requirements and guidance, which are developed by the ES&H

technical support organizations. These documents are based upon contractually required laws, regulations, and standards. The final documents are approved and signed by the DDO prior to publication in the *ES&H Manual*. There are four standing subcommittees (Environmental; Institutional; Nuclear Facilities; and Hazards Control, Health Services, and Emergency Services) that support the ES&H Working Group in fulfilling its obligations by analyzing and reviewing specific ES&H issues. They comprise members of the Working Group, Program representatives and ES&H subject-matter experts.

Assurance Review Office

The Assurance Review Office (ARO) provides an independent, internal ES&H appraisal program to assure that Laboratory ES&H policies and their implementation are consistent with Laboratory requirements, ES&H regulations, and DOE orders. The ARO also provides ES&H institutional oversight for all LLNL nuclear and non-nuclear facilities. The ARO is the Laboratory's central point of contact for external ES&H appraisals, including those conducted by the UC and DOE.

The ARO is responsible for conducting an annual independent assessment of the Laboratory's ISM Program. This assessment shall include an evaluation of the continued conformance of each directorate's ISM program in relationship to the *LLNL ISMS Description*, and commitments made in that organizations' Directorate ISM Implementation Plan, Directorate ISM Gap Analysis, and any succeeding documentation.

Price-Anderson Amendments Act Project Office

The PAAA Project Office is the initial point-of-contact for the Laboratory with UC, other laboratories, DOE, and the Defense Nuclear Facilities Safety Board for all LLNL nuclear facility rulemaking activities. This office manages development of the PAAA Implementation Plans and is the Laboratory's PAAA coordinator for reporting noncompliance with any rules.

Occurrence Reporting Office

The Occurrence Reporting Office assigns numbers to occurrence reports and incident analysis reports, assists management with the categorization of occurrences and submittal of occurrence reports, and assists the Laboratory Emergency Duty Officer (LEDO) in making initial or follow-on verbal occurrence reports.

Document 4.5, "Incidents–Notification, Analysis, and Reporting," and Document 4.3, "LLNL Implementing Procedures for DOE Order 232.1A, Occurrence Reporting and Processing of Operations Information" in the *ES&H Manual*, provide additional information on occurrence reporting.

Risk Management Office

The Risk Management Office is responsible for:

- Managing the Laboratory's Self-insurance Program, which includes the Workers' Compensation and general liability programs.
- Maintaining knowledge of current statutes, DOE orders, and other legal requirements to ensure that the Laboratory is in compliance with the State of California Workers' Compensation and other legal and financial mandates.
- Coordinating the Laboratory's responses to any audits of Workers' Compensation or insurance programs.
- Procuring special insurance to meet unique risks.
- Serving as a resource to Laboratory management on insurance matters and requirements.

3.10 ES&H Technical Support Organizations

Environmental Protection Department

The Environmental Protection Department provides Laboratory organizations expertise and guidance on executing the environmental responsibilities. The Environmental Protection Department's role is to:

- Protect the institution by assuring that all Laboratory operations comply with federal, state, and local environmental laws, regulations, and ordinances, and applicable DOE directives, which are designated in the Work Smart Standards.
- Assist the programs in developing cost effective, timely solutions to environmental requirements.
- Clean up environmental contamination from past operations in accordance with regulatory standards.
- Work with the various directorates to minimize the environmental impact from Laboratory operations to levels consistent with regulatory guidelines.
- Manage, treat and dispose of hazardous, mixed, and radioactive waste for the Laboratory.

In support of the Laboratory's mission, the Environmental Protection Department is responsible for:

- Assigning environmental analysts and other support personnel to the ES&H Teams.

- Responding to onsite emergencies with potential environmental impacts, and, in collaboration with emergency response personnel, guiding the cleanup, sampling, and reporting of incidents.
- Monitoring the Laboratory site and adjacent environment for any impact operations may have on human health and the environment.
- Developing required environmental training for Laboratory workers.
- Coordinating and monitoring LLNL's pollution prevention effort.
- Appropriately handling hazardous, mixed, and radioactive waste for treatment, storage, shipping, or disposal.
- Maintaining awareness of new environmental legislation and informing Laboratory management of the impact such legislation may have on operations.
- Interpreting controls required by the Work Smart Standards, including environmental regulatory requirements, developing implementation guidelines for use by Laboratory organizations, and representing the Laboratory in interactions with regulatory agencies and the public.
- Determining if Laboratory operations comply with environmental laws and regulations, and assessing the risk (if any) or impacts that these operations may pose to the public and the environment.
- Maintaining the Laboratory's inventory of chemicals as required by various state and federal laws/regulations.
- Maintaining the Laboratory's repository of material safety data sheets (MSDSs).
- Developing, revising, and issuing the following:
 - Laboratory environmental implementation guidance.
 - Laboratory environmental protection plans, regulatory reports (e.g., chemical inventories using ChemTrack), permit applications, and other documents required by the National Environmental Policy Act (NEPA).
 - *ES&H Manual* Volume III documents (formerly known as the *Environmental Compliance Manual*), and other supplemental information in accordance with environmental requirements.
- Conducting pre-activity surveys to determine the presence of sensitive, natural, or cultural resources; issuing any needed impact-mitigating guidance; and documenting the implementation of formal Mitigation Measures that have been previously adopted as part of NEPA, or the California Environmental Quality Act (CEQA), or Biological Opinions issued under the Endangered Species Act.
- Managing the Laboratory's interaction with the public on ES&H issues.

Environmental Support Teams (ESTs)

The four ESTs within the Environmental Protection Department assist LLNL programs with environmental issues, both directly and through the ES&H Teams. Each EST consists of a set of subject-matter experts that cover all the environmental disciplines (e.g., NEPA, permits, or waste management).

Additional information about LLNL's environmental responsibilities can be found in Volume III of the *ES&H Manual*.

Hazards Control Department

Hazards Control provides expertise, guidance, and support to Laboratory programs in their effort to work safely. The goals of this effort are to prevent accidents, maintain a safe workplace, minimize exposure to harmful agents, and control emergency situations.

Hazards Control is also responsible for:

- Establishing and maintaining ES&H Teams, that consist of leaders and specialists knowledgeable in health and safety disciplines, and health and safety technologists.
- Interpreting controls required by the Work Smart Standards, including DOE directives as well as health and safety laws and regulations in collaboration with Health Services and with the assistance of Laboratory Counsel.
- Supporting managers in implementing ISM.
- Documenting and maintaining a record of all occupational injuries and illnesses.
- Providing analytical laboratories for industrial hygiene and radiological dosimetry activities (e.g., whole-body counting and calibration and maintenance of industrial hygiene and radiological instruments).
- Providing health and safety education and training that meet institutional and regulatory requirements.
- Responding to emergencies through the Fire Department and ES&H Teams.
- Producing the safety-related portions of the Laboratory's *ES&H Manual* and other publications that give consistent up-to-date guidance on health and safety issues and the Work Smart Standards.

- Recommending actions to the programs that will keep exposures to workers and the public ALARA.
- Maintaining knowledge of new health and safety legislation and informing Laboratory management of the impact such legislation may have on operations.

ES&H Teams

The ES&H Teams comprise ES&H specialists and technicians from the Environmental Protection, Hazards Control, and Health Services Departments. The teams provide support to Laboratory programs and are the key interface between line organizations and ES&H support organizations. Figure 2 shows the composition of and program areas serviced by each team.

The ES&H Teams are responsible for:

- Providing technical support and consultation to authorizing organizations during all operations, including emergencies.
- Assisting authorizing organizations with identifying and analyzing ES&H hazards and in meeting mandatory requirements. The teams, working with subject-matter experts, also advise authorizing organizations of controls that eliminate or minimize identified hazards and concerns and of applicable ES&H Work Smart Standards.
- Providing guidance to authorizing organizations about developing and reviewing safety-related plans, procedures, and documents (e.g., safety plans, work permits, hazard assessments, Integration Work Sheets, design reviews, incident analysis reports).
- Independently performing ES&H surveillance of and feedback on planned and ongoing operations, facilities, equipment, and procedures and recommending corrective actions to the cognizant management. When there is a question about the safety of an operation, the teams shall request that management suspend operations until the problems are resolved.
- Immediately stopping any activity that presents an imminent, uncontrolled, high-risk threat to human safety, health, or the environment.
- Monitoring the work environment to identify areas of non-compliance with applicable requirements in the *ES&H Manual* and Work Smart Standards. (The teams shall advise management on noncompliances.)

ES&H Organizations

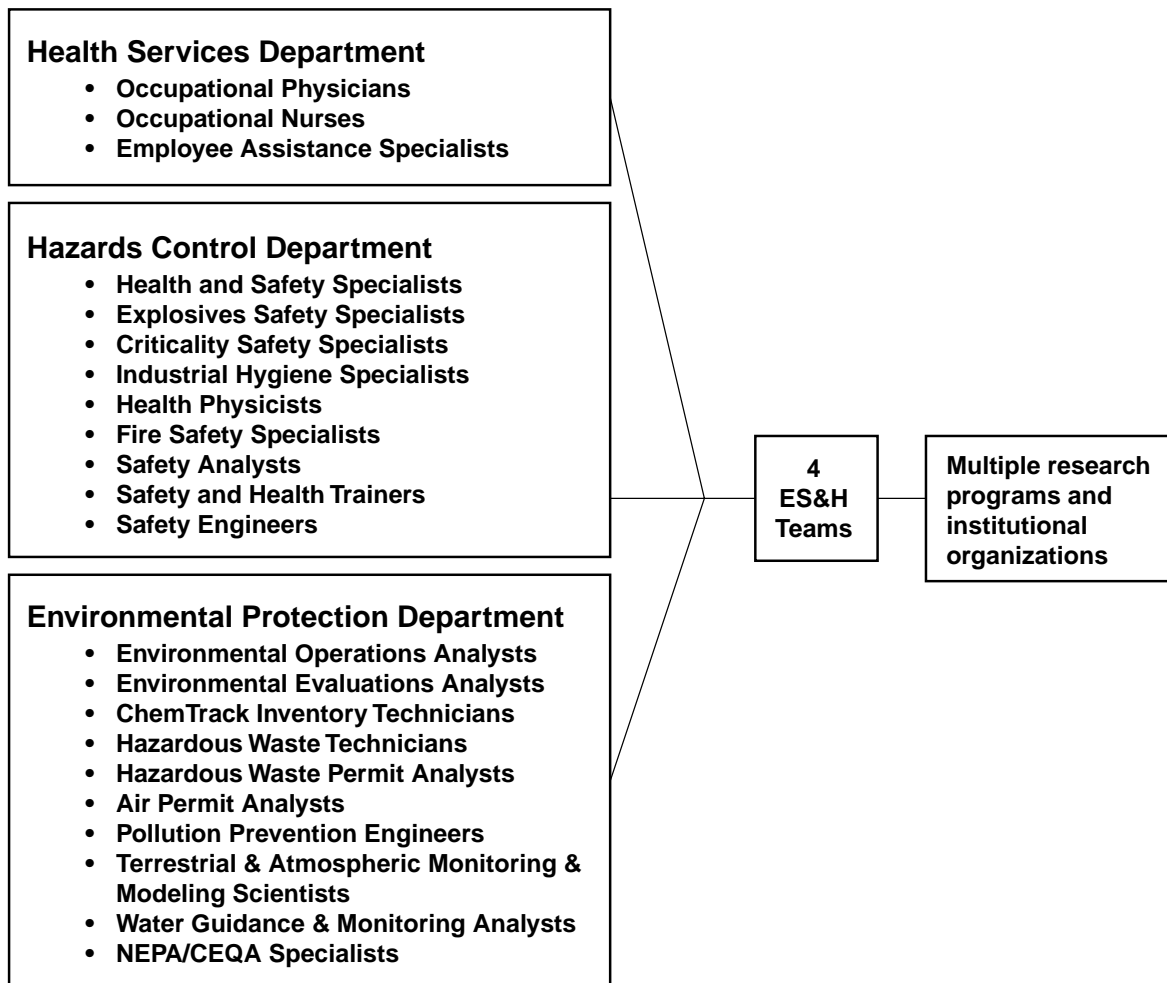


Figure 2. Support structure of the ES&H organizations, ES&H Teams, and Laboratory organizations.

- Bringing to the attention of the Hazards Control Division Leader (through his/her management chain) any concerns that have not been satisfactorily resolved by program management. If necessary, the division leader will raise the issue to the Site Manager for LSO.
- Conducting independent accident and incident evaluations and assisting management in formal incident analyses.
- Conducting activities specified in approved Team Action Plans.
- Providing lost and restricted work-day statistics to payroll organizations.

Additionally, Hazards Control responsibilities for specific operations can be found in applicable documents in Volume II of the *ES&H Manual*.

Health Services Department

The primary objectives of Document 10.1, "Occupational Medical Program," in the *ES&H Manual* are to promote health and a healthy work environment, prevent and detect diseases early, and treat injuries and illnesses occurring in the workplace.

In support of this program, the Health Services Department is responsible for providing:

- Diagnosis, treatment, and follow-up of occupational injuries and illnesses for all LLNL employees.
- All LLNL medical restrictions.
- Return to Work Program for both occupational and non-occupational injuries and illnesses.
- Examinations for work-related concerns.
- Medical surveillance of employees whose job assignments involve physical, chemical, or biological health hazards or travel to certain foreign countries.
- Medical certifications (e.g. respirator use, PAP, PSAP, commercial drivers).
- Preplacement, fitness-for-duty, return-to-work, and termination examinations.
- Skin tests for and counseling about the risks of exposure to "San Joaquin Valley Fever."
- Inoculations for job-related disease exposure.
- Laser eye exams. Records are maintained of employees who have had these exams.
- Reproductive counseling for workers planning a pregnancy.
- First-aid emergency care to all individuals who become injured or ill on site.
- Health check - a personal health risk evaluation with counseling and referrals to on- and off-site resources.
- Facilities and equipment for decontamination and treatment of workers contaminated with chemical, biohazardous, or radiological materials.
- Support and consulting with Laboratory programs through the ES&H Teams.
- An Employee Assistance Program which includes short-term, behavioral counseling, crisis-intervention, and organizational psychology program.

Quality Assurance Support Group

The Quality Assurance (QA) Support Group is responsible for:

- Providing quality assurance guidance and support to Laboratory organizations.
- Preparing and maintaining Document 41.1, "LLNL Quality Assurance Program (M-078)," in the *ES&H Manual*. This document outlines the Laboratory's quality assurance policy and provides guidance on conducting QA evaluations.
- Developing and conducting training on the Quality Assurance Program.
- Coordinating and maintaining the documentation for the 10 CFR 830.120 QA program for the Laboratory.

Plant Engineering Maintenance and Operations (M&O)

Plant Engineering M&O supports the directorates (specifically, the Facility ADs) in the maintenance of their facilities. Although directorates retain responsibility for their facilities, M&O is the authorizing organization, *with facility management concurrence*, to maintain and service life safety, mechanical, electrical, and structural systems and components necessary for the physical, safety, and environmental soundness of the buildings. M&O receives funding from both G&A and the LFC for these responsibilities. Plant Engineering is responsible for the safe execution of M&O work in directorate facilities. The directorates are responsible for informing M&O of hazards associated with their activities and facilities that may impact the performance of specific maintenance activities. (Also see Section 4.3.)

All work in the directorate facilities shall be coordinated through the appropriate Facility Point of Contact. Emergency Services (the Fire Department) provides quality assurance through audits, which include review of the tasks, record of completion, and history of the life safety systems.

3.11 Subject-Matter Experts

Subject-matter experts are usually health, safety, and environmental professionals or electronics, mechanical, or plant engineers who have specific expertise in a particular area of safety. These individuals provide consultation, advice, education, and guidance on specific issues; in some cases, engineers may exercise design or financial authority for a project. Subject-matter experts also draft the specific implementing procedures based on ES&H requirements for review by the ES&H Working Group. Subject-matter experts are responsible for maintaining a working knowledge of Work Smart Standards applicable to their area of expertise and keeping track of any new or changed requirements and regulations. They also assist the ES&H Teams and authorizing

organizations in identifying hazards and applicable controls from Work Smart Standards that are not directly documented in the *ES&H Manual*.

3.12 Materials Management Section

The Materials Management Section in Engineering is responsible for the control and accountability of controlled materials and assuring that all nuclear materials are in authorized locations for programmatic use. The Section is also responsible for the shipping, receiving, transporting and storing of controlled materials. Controlled materials are radioactive, classified, of national interest, or of high monetary value. The Materials Management Section inspects packages containing controlled materials to verify their contents and to ensure the proper packaging, labeling and shipping regulations have been followed. Other operations performed include repackaging, providing transport on-site and arranging for transportation off-site of controlled materials.

3.13 Management of Site 300

The LLNL Director has assigned each facility at Site 300 to an AD. These ADs are to ensure that safety and environmental planning takes place for all operations and facilities for which they are responsible. Although the ADs may assign responsibilities to others, they are ultimately responsible for safety within their organizations, including operational safety, training, facility upgrades, and facility and equipment maintenance. Any facility modifications or corrections that may be required are the responsibility of the facility-assigned AD.

The LLNL Director has assigned overall management responsibility of Site 300 to the AD for Defense and Nuclear Technologies, who has, in turn, delegated the authority for management of Site 300 to the Site 300 Manager.

The Site 300 Manager is responsible for assuring that all safety and environmental programs and procedures are in place and verifying compliance. The Site 300 Manager, in essence, has an oversight role to assure safety of operations, security of operations, environmental compliance, consistency of operations and, in particular, compatibility of performing all day-to-day activities. The Site 300 Manager is to assure that operations in one facility do not cause an adverse interaction in another facility. In this oversight role, the Site Manager concurs with all IWSs, OSP's, Chemistry Peer Reviews, waivers, and procedures from Site 300 Program FSPs after review by the program and facility representatives. If appropriate safety or environmental protection measures are not put in place by the responsible organization for a given operation or experiment, the Site 300 Manager has the authority to stop any operation until the appropriate changes are made.

4.0 Roles, Responsibilities, and Authorities for Work

Integrated safety management means that ES&H issues are addressed and managed along with the technical, financial, and administrative aspects of a given work activity³. Management of work activities generally involves a chain of individuals who are responsible for ensuring that technical objectives are achieved within budget and specific time constraints. This management chain is also responsible for ensuring the work activity is properly analyzed, controlled, performed, and monitored for ES&H issues. The management chain extends from the Laboratory Director to an Associate Director, and in many cases, through personnel in several different directorates before reaching the individuals who actually perform the work.

LLNL has established the following policy governing ES&H responsibility to eliminate confusion about who is responsible for managing the ES&H aspects of a work activity:

1. The organization responsible for the work and in control of the resources is also responsible for managing the ES&H issues associated with that work. Historically, this organization has been referred to as the "program" organization. Throughout this document, this organization is referred to as the authorizing organization because it is responsible for authorizing as well as ensuring the proper conduct of the activities being managed.
2. The responsibility for work authorization, along with the funds or the authorization to use funds, may be delegated to another organization to accomplish a specific work element. Delegation of work authorization and ES&H responsibility must be formally documented and approved by the management of the directorate delegating the work and the directorate accepting the work. However, the program organization retains the ultimate responsibility back to the sponsor for the conduct of the work.
3. Organizations providing services that are "contracted" for by completion of a written work request are responsible for managing the ES&H issues associated with the services they provide, providing technical capabilities to perform the work, and (usually) tools, and fulfilling responsibilities normally performed by the authorizing organization.

Authorizing organizations have three methods for accomplishing their work: 1) They may do the work with their own personnel, in which case the Program AD and the Payroll AD are the same person. Or they may matrix in people with specific skills, knowledge, and abilities (SKA) from another AD (the other AD serves in the role of a

³ A "work activity" is a task or collection of tasks assigned to or performed by one or more individuals. Where practical, it is helpful to group related tasks (i.e., those with the same end goal or that are part of a bigger project) when evaluating the associated hazards in order to catch interactions between hazards that might otherwise be missed.

Payroll AD). 2) They may delegate the work and funds (or an authorization to use funds) to another organization. 3) They may have a service provided.

The purpose of the following parts of Section 4.0 is to establish a standard set of RRAs for most of the work at LLNL. It is intended that the inter-directorate work requests would use a simple form, such as a whiz tag, Form 1, or equivalent, although the statement of work might be more extensive, (drawings, plans, specifications, etc.) that would be attached to the form. The form would authorize the use of the account number to be used for the work. A formal memorandum of understanding (MOU) would not be required. If the authorizing organization does not want to use the standard RRAs, an MOU shall be prepared specifying the RRAs that will be used.

4.1 Intra-Directorate Work

Internal Directorate Work

When an authorizing organization uses its own personnel to accomplish the work, that organization retains all of the primary responsibilities (including ES&H) for the accomplishment of the work. The authorizing organization is also the supervising organization. The authorizing organization may accomplish the work in its own facilities, or they may lease space from another Facility AD.

Note: Leasing space from another Directorate requires a lease agreement form, Appendix B.

As an example, a Directorate's Theory Group performs an analysis of an experiment.

Matrixed Work

When the authorizing organization matrixes in personnel from another Payroll AD, the authorizing organization retains all of the primary responsibilities (including ES&H) for the accomplishment of the work.

Note: Matrixing personnel into an organization is simply a variation, for ES&H RRAs, on doing intra-directorate work.

In addition to their SKA, matrixed personnel bring the work practices (including ES&H practices) of their parent organizations with them. The Payroll AD of the matrixed personnel provides administrative support such as performance monitoring and appraisals, management of training needs, payroll, and other related administrative functions. The authorizing organization may provide day-to-day supervision and assign tasks, or they may delegate that role to the matrixed-in group. An authorizing organization may matrix in a broad range of capabilities: as little as a small fraction of a

single person's time, a group of people, up to a full division. Matrixed personnel may fill organizational positions within the authorizing organization and may appear on their organization chart. The authorizing organization usually houses matrixed personnel within their facilities and provides tools, personnel protective equipment, and test equipment. (An exception may occur if specialized facilities, such as a chemistry lab, are required for the work.)

Each directorate shall specify the organizational level that is authorized to matrix-in personnel.

Following is an illustrative example:

Matrixing-in: The Principal Investigator in the authorizing organization may matrix in a small group of Mechanical Engineering (ME) personnel, including a Technician Supervisor and 5 Mechanical Technicians. The technicians are assigned to operate and maintain experimental equipment for the authorizing organization. The Technician Supervisor develops work schedules and task assignments for the technicians. The Technician Supervisor may also be assigned the additional duty as a Facility POC for one of the authorizing organization's buildings. The Technician Supervisor has an office in the building and the technicians have shop and bench space in the room next to the experimental equipment. The Principal Investigator of the authorizing organization writes the OSP (with the participation of the ME personnel who will be performing the work) for the experimental operation, analyzing the hazards, establishing the controls, and setting the job-specific training requirements.

4.2 Inter-Directorate Work (Delegation of Responsibility for Work Authorization)

Work authorization and responsibility may be delegated to another organization, along with the funds or an authorization to use an account number, to accomplish a specific work element. Normally, all of the ES&H RRAs associated with the work (including occurrence reporting) are delegated to the accepting directorate that will perform the work, thereby relieving the original organization of the primary ES&H responsibilities. All delegations/transfers of work authorization authority must be documented, using a simple form (see Appendix C) and a statement of work, and be approved by the management of the delegating and accepting directorates involved.

Formal delegation of work authorization and responsibility are made from directorate to directorate, not from a directorate or sub-tier organization to an individual or from an individual to another individual. This provision does not apply to intra-directorate delegations of work unless specifically invoked by the directorate's internal policies and procedures.

If the full standard set of RRAs will not be delegated, a formal MOU shall be used. The MOU for delegation of work authorization RRAs is to contain the following elements:

- Scope of work covered by the work authorization delegation.
- Resources (personnel, space, equipment, time and funds) allocated to ensure sufficient coverage of programmatic and safety requirements.
- Specific RRAs that are being delegated.
- RRAs for the handling of safety-related incidents that may occur during the course of the work.
- Mechanisms for handling changes in work scope and resource requirements.
- Issues regarding work-close out and RRAs for dealing with residual safety concerns (e. g. legacy waste, long term health effects, etc.), as applicable.
- Resource issues regarding the facilities to be used, including any modifications required for the work to proceed, or restoration of the facility to "normal" condition after the work has been completed.

The resulting documentation associated with the work authorization delegation is to be retained by directorates in accordance with each organization's records retention requirements.

Each directorate shall specify the organizational level that is authorized to delegate work to another directorate. In addition, directorates shall specify the organizational level that is authorized to accept work delegations/transfers.

4.3 The Performance of Services

Each directorate shall specify, in its ISM Implementation Plan or related document, the organizational level that is authorized to request services. Usually the RI and the Facility POC levels (and above) are authorized to request services. The organization providing a service shall specify, in their ISM Implementation Plan or related document, the organizational level that is authorized to accept service requests. In addition, the service provider shall develop or adopt a form, such as the Whiz tag, Form1, or equivalent, to state the scope of work, whether or not the standard ES&H RRAs are to apply, schedule, and cost account use authorization.

The success of LLNL's ISM Program is ultimately dependent upon the effective interaction between organizational elements in the conduct of work. Work performed as a service by one organization for another poses a particular area of concern with respect to the successful implementation of ISM. Therefore, it is essential that RRAs are clearly defined and communicated for each party prior to starting the service activity.

The program organization is responsible for designating the organizations and individuals responsible for carrying out the various RRAs associated with the work activity. The designation of RRAs is generally straightforward in the conduct of work by a single organization. However, work activities involving more than one organization will typically require additional attention to ensure that the complete set of safety-related RRAs are covered, appropriately documented, and properly communicated to the parties involved.

The performance of a specific service by one organization for another constitutes a critical subset of the interactions between organizational elements and requires particular attention and a standard division of safety RRAs. In organizing services provided at LLNL, three service categories and their associated safety RRA sets have been identified:

Services Category 1—Regular Services

- a. Work is performed either at the service provider's facility or at the requester's facility.
- b. Service or product is provided upon written request of an LLNL client.
- c. There is a prescribed or negotiated fee for the service or product.
- d. Little or no work is performed by the client.
- e. The product or service is defined either with a start and stop point, or it may be long term.

Safety RRAs: The service provider management chain inherently assumes the ES&H RRAs for the service he/she is providing. The client shall provide information on any hazards associated with the work request and/or the work location. The service provider then has the responsibility for performing the job, including analyzing the situation for other hazards and implementing ES&H controls. Work concurrence responsibility is exercised by the Facility POC, whether the work is done in the requester's facility or the service provider's facility.

This category includes Plant Engineering services performed in response to a Form 1 or Whiz Tag request. It may include activities commonly performed by the public. This category may include ongoing activities such as custodian services and mail delivery. For ongoing activities, the coordination listed below may only be required at the beginning of the activity, or when personnel change.

If the work is to be accomplished in the requester's facility, the requester's Facility POC is, at minimum (also see Section 3.8, Facility POC), responsible for items 1 through 6 below. If the work is to be conducted in the service provider's facility, the service provider's Facility POC is responsible for items 3 through 6 below.

1. Ensuring that the work scope is defined for program or facility requested work (i.e., obtaining work scope information from the requester and communicating this information to the service provider). For Institutionally funded work, the authorizing organization (usually Plant Engineering) defines the scope of work.
2. Ensuring that sufficient resources for the defined work to be performed safely are provided (i.e., agreeing to a cost estimate and providing an appropriate cost account number). For Institutionally funded work, the authorizing organization (usually Plant Engineering) provides the funding.
3. Identifying hazards associated with the *facility* / work location / environment.
4. Establishing and communicating any safety controls and /or special conditions, including unacceptable collateral effects, that might be associated with the requested service.
5. Once satisfied that the facility-related aspects of the activity are properly planned and coordinated, the Facility POC shall grant permission to the service provider to proceed with the work activity. For ongoing or open ended services, this may be done annually.
6. As appropriate, participating in the service provider's prestart review.

The requester's facility or program may be responsible for costs associated with unique facility requirements or conditions (e.g. special training, safety controls, etc.)

The service providing organization is responsible for:

- Identifying the management chain associated with the service.
- Ensuring that the personnel performing the service are qualified, appropriately trained, and physically capable (including medical certifications or surveillance as necessary).
- Identifying and analyzing hazards pertaining to the performance of the work activity.
- Contacting the Facility POC prior to initiating the work activity for the purpose of identifying and communicating to the Facility POC potential collateral effects of the service.
- Establishing an integrated set of controls to reduce to an acceptable level the residual risk associated with the work activity in the work location.

- Conducting a prestart review, when required.
- Obtaining permission from the Facility POC to proceed with a new work activity. For ongoing or open ended services, continuing coordination is required.
- Performing the service consistent with the defined controls, including the facility-specific work control process.
- Providing appropriate supervision and review of the activity.

The Facility POC is to assume additional responsibilities beyond the standard set listed above if it is determined appropriate to ensure that the requested service will be performed safely and successfully. Any division of safety RRAs between the requesting and service providing organizations that is different from the standard RRAs listed above shall be documented and communicated as part of the formal request for services (i.e., PE Form 1 or equivalent documents).

The ES&H RRAs for the services provided by the Hazardous Waste Technicians are slightly different from the regular services, listed above. These RRAs are listed in Appendix D.

Services Category 2—Emergency Response Services

Safety RRAs: The service providing organization acts as the organization authorizing work. The Laboratory maintains an Emergency Management Plan, and Facility Management provides input in the form of hazards identification and hazardous materials inventories for each facility.

The service provider shall make available, to the Facility POC, appropriate information on incidents or remedial actions. The Facility POC does not have any specific ES&H responsibilities during an emergency response other than responding to requests from the emergency response personnel.

Examples of these services are Fire Department emergency responses, hazardous waste spills, alarms response, and performance of emergency Safeguards and Security functions.

Services Category 3—Services provided by Institutional (Un-sponsored) Subcontractors

Additional details regarding the RRAs for services provided by subcontractors is contained in Document 2.5, "Procured Services Subcontractor Environment, Safety, and Health Program," in the *ES&H Manual*.

- Work is performed at the subcontractor's facility, the requestor's facility, or both.
- The requestor is the authorizing organization and, through a Property & Material (P&M) Technical Release Representative (TRR), purchases the service directly with the subcontractor through an Institutional subcontract or by a Lab credit card purchase. Or, the requestor is the authorizing organization and, through a P&M subcontract (not a supplemental labor subcontract), brings subcontractor personnel on site to perform work.
- Little or no work is performed by the authorizing organization.
- The service is defined and includes a starting point and an end point.

The requester is the Responsible Individual and at a minimum is responsible for items 1 through 6 below. If the work is to be accomplished in the requester's facility, the requester's Facility POC must concur with (also see Section 3.8, Facility POC), items 1 through 6 below.

1. Ensuring that the work scope is defined (i.e., obtaining work scope information from the requester and communicating this information to the subcontractor).
2. Ensuring that sufficient resources for the defined work to be performed safely are provided (i.e., funding the subcontract, credit card purchase or release through P&M's PARIS system).
3. Identifying hazards associated with the work location/environment.
4. Establishing and communicating any safety controls and/or special conditions, including unacceptable collateral effects, that might be associated with the requested service.
5. Once satisfied that the facility-related aspects of the activity are properly planned and coordinated with the Facility POC, the requester shall provide the subcontractor a notice to proceed with the work activity when using a release or credit card or, if using a subcontract, shall notify the Contract Administrator that a notice to proceed may be issued.
6. As appropriate, participating in the subcontractor's prestart meetings or reviews.

Following are some illustrative examples:

Services Category 1: A Program requests that an equipment stand be fabricated in the Plant Engineering weld shop. The Program provides a drawing and welding specification, a due date, and an account number. The weld shop assumes all of the ES&H RRAs for the work, including work and safety practices. Other examples: part machining and non-destructive testing by MMED, photographic developing and material printing by TID, and chemical analysis by C&MS Analytical and Nuclear Chemistry Division.

Services Category 1: A Program requests that a new outlet be installed. If the outlet will be installed in an office building, the safety RRAs will likely follow the standard division of RRAs stated above. In contrast, installation of an outlet in a chemistry lab might entail a curtailment of operations, hazardous chemicals being removed from the area, and the electrician having to wear special PPE, such as a respirator, to safely perform the service activity. In this second example, the Facility POC would likely have numerous responsibilities in preparation, coordination, and oversight of the service activity.

Services Category 1: An authorizing organization submits a whiz tag to Plant Engineering to have a room painted. Plant Engineering M&O becomes the authorizing organization for this task, subject to facility concurrence that the work may proceed. The painting supervisor assigns the painter to the task. The painting supervisor has analyzed the hazards associated with painting and has established safe work practices for that work. The painter or his supervisor coordinates with the Facility POC, who verifies that the room is ready to be painted and that the experimental equipment in the room is de-energized. In this example, the painter will supply material to cover the experimental equipment while the work is being done.

- As an extension of this example, some facilities have special training requirements that must be fulfilled before personnel can enter that facility. These requirements are usually provided to Plant Engineering and an MOU is prepared in advance to ensure that a trained cadre of facility-qualified personnel are available to perform work.
- As an extension of this example, some facilities have special conduct-of-operations or technical safety requirements regarding the status of systems and equipment that must be met. These requirements may be covered, in advance, by an MOU, or will be handled by the Facility POC.

Services Category 1: A Health and Safety Technician and a Hazardous Waste Technician are assigned to provide guidance, monitoring, and work needed to help staff meet their ES&H obligations. These technicians are supervised by the ES&H Team

Division Leader and the HWM Division Leader respectively. Duties, level of effort, and account numbers to be used are reviewed annually.

Services Category 1: Plant Engineering M&O is the authorizing organization for the maintenance of buildings, with their related equipment, and the utilities infrastructure. They are responsible for providing deliverables within their allocated budget, and for the ES&H requirements for their work. Even though they are the authorizing organization, their work is coordinated through the Facility POC where the work will be performed. The facility POC grants permission for the work to proceed, ensures that the workers are entering a safe environment, and minimizes disruption of other work in progress within the facility.

Services Category 2: When a person calls 911 for an emergency situation, the Emergency Management Division automatically becomes the authorizing organization, without any documentation (other than the Emergency Management Plan), to respond to that incident. The Emergency Management Division is responsible for the safety and the work practices of the response.

4.4 The Purchase of Goods

Goods include off-the-shelf commercial items, non-commercial items made to a Laboratory specification and fabrications made to a Laboratory drawing.

The Responsible Individual of the authorizing organization shall ensure that the ES&H hazard associated with the intended use of purchased goods is considered prior to the purchase and that the requestor communicates the hazard level to the procurement organization (either P&M or a TRR) with the purchase request or requisition. The procurement organization will work with the requestor to select vendors capable of providing goods of such quality that will support the intended use. The Responsible Individual shall assure the quality of the goods after receipt and before use.

5.0 Responsibilities of External Organizations and Non-LLNL Personnel

Section 5.1 lists, for information purposes, some of the main ES&H responsibilities of external organizations. This Section does not assign responsibilities to those organizations. Section 5.2 establishes RRAs for non-LLNL personnel.

5.1 External Organizations

As part of its oversight role, staff of UC, DOE, and other regulatory agencies conduct periodic reviews of how the Laboratory implements Work Smart Standards. The review includes briefings by Laboratory personnel; examination of relevant policies, implementation guidance, and records; and workplace inspections. If the personnel from the external organizations are not trained and qualified for the facilities that they are inspecting, they will have to be escorted by qualified personnel.

University of California. UC monitors the Laboratory's progress in meeting ES&H-related performance measurement goals and the Laboratory's self-assessment. The Laboratory is required to conduct an annual self-assessment to determine whether management has met its performance goals.

Department of Energy. The DOE Office of Environmental, Safety, and Health (EH) provides independent oversight of the Laboratory's ES&H operations to ensure conformance with applicable laws and requirements governing the environment and the health and safety of the public and workers at DOE facilities. The DOE Programs (e.g., DP, SC, EM, NN, etc.) have the primary responsibility for ES&H performance in their respective areas.

Other Agencies. Many LLNL activities, primarily in the environmental area (e.g., waste operations, air, and sewer discharges), are governed by federal, state, and local regulations. Environmental agencies frequently perform inspections and audits to ensure compliance. More information about these agencies can be found in Volume III of the *ES&H Manual*, (documents formerly known as the *Environmental Compliance Manual*).

5.2 Non-LLNL Personnel

Non-LLNL personnel are visitors, students, participating guests, contract labor, supplemental labor, vendors, and others who work for facility operations contractors. Each non-LLNL person shall have a sponsoring or supervising organization, except as covered by the terms of a contract. The authorizing organization, using the personnel, is to ensure that these individuals have or receive ES&H training for the hazards associated with the work in the work area and the same pre-placement and ongoing medical surveillance examinations as those provided to LLNL employees. Individuals who have not had ES&H training shall be escorted and directly supervised by personnel knowledgeable in the hazards for the area.

Non-LLNL personnel are responsible for:

- Reporting all supplemental-labor-only (SLO) work-related injuries and illnesses to their supervisor or LLNL point of contact.

- Using the same protective equipment and safety controls required for any other employee working in the area.
- Following LLNL requirements governing the safe and orderly conduct of operations.
- Only performing work that has been authorized.
- Not performing duties that may expose them to hazards beyond those specified in their contract. Non-LLNL personnel without contracts should not perform duties that may expose them to hazards beyond those to which their co-workers are exposed.
- Following activity / facility specific work control processes.

Health Services provides emergency first aid to all individuals on site. Respirator review is provided *only* for LLNL employees and supplemental labor employees. Special examinations may be provided to supplemental labor employees and others by Health Services only if requested by LLNL management or as specified in contractual agreement. Consult the ES&H Team for current requirements.

Supplemental Labor Workers. The supplemental labor policy states that specific subcontract provisions must be in place to allow for work with a likelihood of exposure to substances not generally encountered in similar work in the relevant job category in U.S. industry. The policy also states that supplemental labor employees require a physical examination within the first 30 days of work. Organizations requesting supplemental labor support must provide a description of job duties to the vendor to serve as a basis for the examiner's review and recommendations. The vendor must provide the Supplemental Labor Office evidence of the exam.

Further details on this policy can be found in *the LLNL Supplemental Labor Policy Manual*.

Contractors. All Contractors who provide support to the Laboratory or are responsible for facility operations are not relieved of any legal obligations with regard to ES&H. Contractors may augment the Laboratory's ES&H policies with those of their company, but must follow the Laboratory's policies as a minimum.

Subcontractors. All construction and procured services subcontracts shall contain the requirements and guidance necessary to extend the Laboratory's ES&H policy to subcontractors who perform work in Laboratory-controlled areas. (See Document 2.4, "Construction Subcontractor Environment Safety & Health Program," and Document 2.5 in the *ES&H Manual* for details.) Subcontractors are responsible for the

flowdown of safety requirements and safety interactions with lower-tier subcontractors. Before any contract or purchase order can be issued for work at the Livermore site or Site 300, the requester (Responsible Individual) shall:

- Have an ES&H Team evaluate the potential for injury or damage that may result from the operation.
- Inform the subcontractor, through the appropriate Laboratory contract administrator, of any unique hazards of the work environment and any special protective measures specified by LLNL that are required for work.
- Include in the contract or purchase order a reference to the UC-LLNL prescribed safety standards and applicable requirements from this Manual.

All formal interactions between LLNL and the subcontractor shall be through: the Project Manager, Construction Manager or Inspector for Plant Engineering sponsored subcontracts; the Facility POC or Responsible Individual of the authorizing organization for non-Plant Engineering sponsored subcontracts; or through the Procurement Contract Administrator. Either Plant Engineering or the authorizing organization is responsible for providing LLNL ES&H oversight of the subcontractor's activities. Personnel from the authorizing organization may only have direct contact with subcontractors if it becomes necessary to stop an imminently dangerous operation.

The Laboratory cooperates with subcontractors by restricting potentially hazardous operations near the subcontractor's work area and by providing fire-fighting and emergency ambulance services.

Additional requirements for construction subcontractors performing work at the Laboratory can be found in Document 2.4. Additional requirements for procured services subcontractors performing work at the Laboratory can be found in Document 2.5.

Restrictions for Underage Workers. Federal and state regulations and LLNL policy may restrict the work activities of minors. Following is a summary of the work requirements for underage workers:

- Workers under the age of 18 shall not operate government vehicles or perform work involving human chemical carcinogens, mutagens, teratogens, or reproductive hazards. The radiation exposure limits for minors are specified in Document 20.1, "Occupational Radiation Protection," in the *ES&H Manual*.

- According to California regulation,
 - Workers under the age of 18 shall not operate a forklift, crane, derrick, power hoist, or vehicle exceeding 6000-lb gross vehicle weight; do any work involving explosives, wrecking or demolition, or rigging; or be a rigger's helper.
 - Workers under the age of 18 are restricted from working with hazardous equipment, in an occupation declared particularly hazardous, or on any building or in construction work unless they are in an approved apprenticeship training program or a work experience program. Hazardous operations include roofing, excavation, or operation of power-driven woodworking machines, saws, or nailers.
 - Workers under the age of 16 may not use hazardous chemicals unless they are in an approved apprenticeship training program or a work experience program.
 - Personnel under the age of 18 shall wear a helmet when riding a bicycle.

6.0 Summary of Remaining ISMS Principles and ISMS Functions

This section briefly summarizes the remaining ISMS principles not discussed in this document and the ISMS functions. Additional information can be found in Document 2.2, the *LLNL ISMS Description* at

http://www.llnl.gov/llnl_only/es_and_h/ism/ismsd.pdf

and the DOE source documents, DOE G 450.4-1, at

<http://www.explorer.doe.gov:1776/htmls/regs/doe/newserieslist.html>

6.1 ISMS Principles

Safety Requirements are Identified and Implemented (Principle 5)

Contract 48 Requirements. The University of California operates the Laboratory under Contract 48 for the Department of Energy (DOE), the primary sponsor of work performed at LLNL. Contract 48 establishes compliance requirements and legal parameters under which the Laboratory must operate and is held accountable. Sections of the contract that include ES&H requirements are:

- Clause 5.5 and Appendix E, Section 3.2, which covers compliance requirements for the environment, safety, and health.

- Appendix F, which includes objective performance measurement goals that are established annually by UC and DOE (with input from the Laboratory).
- Appendix G, which lists DOE directives and Work Smart Standards that have been accepted by UC for the purpose of imposing standing operational requirements and obligations on the University and thus on the Laboratory.

Additionally, the LLNL Work Smart Standards (WSS) process has identified work, hazards, and standards for existing LLNL activities. Requirements from these standards are to be applied to hazards associated with Laboratory work. Subject-matter experts notify the WSS Change Control Board of any new work not covered by WSS or changes in the standards included in the WSS set.

ES&H Manual. The volumes of the *ES&H Manual* contain or reference the WSS that govern specific hazards associated with Laboratory work. Subject-matter experts are used to assist authorizing organizations to identify work activities and applicable controls from the Work Smart Standards that are not directly documented into the *ES&H Manual*.

Tailoring Hazard Controls (Principle 6). The hierarchy for effectively controlling hazards are as follows:

- Eliminate the hazard by revising the design of the activity.
- Reduce the risk by reducing the degree of severity or the probability of occurrence through redesign or re-engineering of the activity.
- Provide safety devices (e.g., guards, interlocks, shielding).
- Provide personal protective equipment.
- Provide warning devices (e.g., horns, flashing lights, signs).
- Provide safety plans and procedures and other administrative controls.
- Provide medical certification/surveillance as required.

Document 2.2 lists general management controls for hazards associated with Laboratory activities. These controls may be tailored to meet the needs of specific operations.

Operations Authorization (Principle 7). Work authorization is required for any new or revised operation which involves activities not commonly performed by the public, as discussed in Document 2.2. The Responsible Individual's line manager shall verify that a review is conducted before the start of any new or revised operation. The Responsible Individual shall ensure that the following conditions are met prior to commencing a new or revised operation:

- A review is conducted.

- Hardware and tools are available, the facility is operable, and the equipment is ready for operation.
- The required safety systems are correctly installed and tested.
- The activities or experiments are ready, ES&H documentation is completed, maintenance of safety systems is scheduled, and permits are issued.
- Personnel know their responsibilities, are aware of the hazards and required work controls for the area, and are trained and certified (if needed) for the operation to be performed.
- Applicable facility requirements pertaining to the work have been met.

Additional information can be found in Document 2.2 of the *ES&H Manual*.

6.2 ISMS Functions

The five ISMS functions listed below are the basis for carrying out all work activities at the Laboratory.

1. Define the scope of work.
2. Identify and analyze the hazards associated with the work.
3. Develop and implement hazards controls.
4. Perform the work within the controls.
5. Provide feedback on the adequacy of the controls and continuous improvements in defining and planning work.

More details on the ISMS functions can be found in Document 2.2. Other components of ISM that are based on the specific nature and hazard of the work being performed are documented in safety plans and procedures, hazards analyses, and other administrative reports.

6.3 LLNL Fundamental Guiding Principle

In addition to the ISM principles above, the Laboratory also has a fundamental guiding principle. Workers, supervisors, and managers are directly responsible for ensuring their own safety and promoting a safe, healthful, and environmentally sound workplace and community.

7.0 Stop Work Process

In the event it is determined that the work activity's operating limits and/or controls are not being followed, or when common sense indicates that people, property, or the environment are at imminent or substantial danger of being hurt or damaged, the work shall be stopped or suspended until appropriate remedial actions are taken.

7.1 Imminent Danger Situations

Activities that are imminently dangerous to workers, the public, or the environment shall be stopped immediately by any Laboratory employee (not only members of ES&H organizations), supplemental labor employee, or contractor providing support to or operating an LLNL facility. "Stopping work" includes stabilizing an imminent danger situation to the extent that it can be left unattended for a prolonged period of time until the issue is resolved. The person requesting the work stoppage shall notify the manager responsible for the operation. The manager shall notify the area ES&H Team, and the Directorate ES&H Assurance Manager as soon as possible of this action. Persons performing the work who disagree with the work stoppage shall contact their management.

7.2 Substantially Dangerous Situations

Each worker is empowered to stop work if there is an unsafe or unapproved condition. The RI shall mitigate substantially dangerous situations immediately. As a minimum, mitigation shall include providing a barrier (e.g., cordons, personnel watch) to reduce the possibility of personnel exposure. The person requesting suspension and mitigation shall notify the manager responsible for the situation. The Responsible Individual shall notify the area ES&H Team, and the Directorate ES&H Assurance Manager as soon as possible of this action.

7.3 Potentially Dangerous Situations

Informal stop work interventions to correct minor conditions (e.g., to remind workers to put on their hard hats, safety glasses, etc.) do not require formal notification.

8.0 Employee ES&H Rights and Responsibilities

No one who requests a work stoppage, or advises his or her supervisor or management of any other safety concern, shall be subject to any adverse action by Laboratory management, even if it is later determined that the activity was safe.

8.1 How to Resolve Safety Issues

Work to resolve issues at the lowest level. As needed, escalate through these steps to resolve safety issues at LLNL:

1. Contact your LLNL supervisor (or your LLNL contact person if you are a visitor).
2. Contact your Facility POC or facility manager.
3. Contact your ES&H Assurance Manager.
4. Contact your ES&H Team or the Hazards Control Department.
5. If you are a contractor or visitor, speak with your employer.
6. Contact DIALOGUE via email (dialogue@llnl.gov) or interoffice mail (mail stop L-100).
7. Contact the Laboratory Site Manager.
8. Contact the DDO.
9. Contact the University of California, Office of the President (UCOP) at (510) 987-0801.
10. Contact DOE at (510) 637-1611.

See the "ES&H Contact List" for the current phone numbers for the LLNL listings above.

8.2 Your Rights

You have the right to work in an environment free from recognized hazards likely to cause death or serious injury. Therefore, LLNL must:

- Notify you of exposure to harmful substances above legal limits.
- Provide you access to your exposure records.
- Allow you to refuse work in conditions that are likely to cause serious harm to you or others.

The Laboratory is forbidden by Federal Law to make reprisals against employees who raise legitimate safety concerns. As an employee of a DOE contractor, you also have the right to file confidential complaints within 60 days regarding health and safety issues or reprisals in accordance with 10 CFR 708 with the local DOE office. You may write a letter, submit Form 5480.4 (available from DOE), or phone in your complaint to the Department of Energy, Employee ES&H Concerns Program, DOE-OAK, 1301 Clay Street, Suite 700N, Oakland, California 94612. The Employee Concerns 24 hour hotline is (510) 637-1611.

LLNL has established an LLNL ES&H Hotline (ext. 2-2922).

8.3 Your Responsibilities

You are accountable for your safety as well as the safety of those impacted by your activities. Therefore, you must:

- Understand your work area's hazards and know the procedures and controls necessary to avoid them.
- Comply with all ES&H regulations and standards.
- Participate in mandatory training and required health and safety programs.
- Immediately correct ES&H-related problems or inform your supervisor.
- Know your work area's emergency plan.
- Warn fellow workers of hazards and defective equipment.
- Report all work-related injuries and illnesses to your supervisor and Health Services.

9.0 References

9.1 Work Standards

DOE Order 440.1A, "Worker Protection Management for DOE Federal and Contractor Employees," Attachment 2, "Contractor Requirement Document, Sections 1–11, 13–18 (delete item 18.a), 19 (delete item 19.d.3) and 22.

10 CFR 708, "DOE Contractor Employee Protection Program."

See the Work Smart Standards set for the complete list of Standards.

9.2 Other Resources

LLNL Integrated Safety Management System Description, UCRL-AR-132791, current version.

DOE G 450.4-1, "Integrated Safety Management System Guide."

29 CFR 1903.11(d), "Whistle Blower Protection."

Appendix A

Terms and Definitions

The following terms and definitions have special meanings and apply to the entire *ES&H Manual*. See Document 5.1 for additional terms and definitions.

Assure	To make sure (verify) that something was done.
Authorizing Organization	An organization distinguished by having control of funding as well as responsibility to its sponsor for the accomplishment of the programmatic mission or activity. A Laboratory organization (e.g., Directorate, Group) that has been given a project or task, with specifications for a deliverable, funds, and scheduled milestones. The project or task may have come from an external organization (e.g., DOE Headquarters) or from another laboratory organization.
Directorate	This term includes Directorate-like or directorate equivalent organizations at LLNL (i.e., Laboratory Site Operations).
Ensure	To cause something to be done, either by doing it yourself or following up on assignments or delegations to confirm they were completed.
Line Management	Managers from the Director, through the Associate Directors (ADs) and directorate managers appointed to manage work performed at LLNL. The management chain covers the management of programmatic work, payroll personnel, facility operations, and service work. All ADs are responsible for one or more of these lines of management. Thus, care must be taken in using the term "line management" to ensure the specific line being referenced is understood to be programmatic, payroll, facility, or service.
Responsible Individual	The first-level supervisor or manager directly responsible for an operation or activity. The Responsible Individual may be at any level within the organization and is formally identified by the Authorizing individual of the activity.

Shall	Denotes a requirement that is NOT optional. If an exception to a requirement is to be permitted, the level of approval is delineated in Document 2.2 and Document 2.3, "LLNL Exemption Process," in the <i>ES&H Manual</i> .
Should or May	Denotes a desirable or best management practice. Written justification is not required if a "should" or "may" statement in the LLNL <i>ES&H Manual</i> is not used.

Appendix B

Space Lease Agreements

A Program AD may lease space from another Facility AD. The RRAs required to conduct operations in another facility must be clearly defined. This appendix defines the standard set of RRAs for lease agreements. If a non-standard set of RRAs is to be used, an MOU shall be prepared. A "Building Space Lease Authorization Form" is included, which may be used to specify options and provide a place for signatures.

B.1 Authorizing Organization

An authorizing organization leasing space from another facility AD has the following responsibilities:

- ES&H responsibility for the conduct of the work.
- Provide a scope of work to the Facility POC.
- Provide a funding authorization (account number) for space and other charges.
- Obtain approval from the Facility AD for all facility modifications before any construction begins.
- The cost of any and all modifications to the occupied space. Modifications will become the property of the Facility AD, unless otherwise agreed upon in writing.
- At the conclusion of occupancy, return the space in a condition equal to or better than its original condition, less normal wear and tear.
- Ensure their activities follow requirements stated in the building FSP, if one exists.
- Prepare an Integration Work Sheet (IWS) for the work (see Document 2.2). This involves identifying the hazards and establishing and implementing controls.
- Identify the management chain associated with the work.
- Identify the personnel working in the area.
- Identify the training requirements for the work.
- Ensure that personnel are trained, qualified, and physically capable of doing the work.

- Prepare an OSP, if required, with assistance from the ES&H Team that supports the facility and the Facility AD. (This ES&H Team will publish the OSP and will provide primary ES&H support for the work.)
- Obtain any necessary permits and engineering safety notes.
- Conduct a prestart review, if one is required, including the Facility POC in the process.
- Authorize the work and request concurrence to proceed from the Facility POC when the work is ready to start.
- Conduct the work consistent with established controls.
- Provide ongoing supervision and review of the work.
- Include the work activity in the authorizing organization's Self-Assessment Program.
- Correct any deficiencies resulting from the work. Deficiencies may be identified during self-assessments or other reviews.
- Manage hazardous waste according to the requirements in the *Waste Acceptance Criteria*.
- Maintain programmatic equipment in and associated with the facility.
- Suspend work when considered necessary by management or at the request of the landlord because of an ES&H issue.
- Provide the Facility POC with access to all work areas.
- Contact the Facility POC when additions or changes to the scope of work are anticipated; prepare an additional IWS, if necessary.
- Provide ChemTrack reconciliation, waste projections, National Emissions Standards for Hazardous Air Pollutants (NESHAPS) data, and other information for the occupied space.
- Conduct reviews of incidents associated with the work consistent with the requirements in the *ES&H Manual*. (The Facility AD files the initial Occurrence Report, when one is required.)
- Provide at least 30 days notice before moving from the space. Perform project close-out activities consistent with the *ES&H Manual*.

B.2 The Facility AD

The Facility AD leasing space has the following responsibilities, which are exercised through his/her facility management organization:

- Identify the Facility POC.
- Identify the hazards associated with the facility and work location. Provide this information to prospective tenants.
- Establish and communicate any safety controls, special conditions, training requirements, and collateral effects associated with the facility.
- Address facility-related ES&H issues, including maintenance and repair of safety related, environmental protection, and infrastructure systems.
- Delineate the area to be used by the tenant.
- Communicate the list of services that are included in the space charge. Identify any other charges associated with the lease.
- Assure that an IWS and an OSP, if required, are prepared for the proposed activity. Review and concur with the IWS and OSP in a timely manner.
- Maintain the FSP and other safety related documents, as applicable.
- Provide concurrence for the work to proceed once the required controls are in place and the work is authorized.
- Participate in the prestart review, if one is required.
- Monitor compliance, in the tenants space, with the provisions of the FSP and the RRAs in this document.
- Include the work area in the facility self-assessment program. Enter deficiencies into DefTrack.
- If an incident occurs, file the initial Occurrence Report and ensure that required reviews of incidents are conducted. (If the incident was associated with the tenant's work, the authorizing organization completes the Occurrence Report and conducts the review.)

BUILDING SPACE LEASE AUTHORIZATION FORM

Building / Trailer # _____ Room # _____ Total area _____ sq. ft.
(Attach a list or marked key plan If more space is needed.)

Occupation Date: _____ Initial OFC Rate _____

End of Use Date: _____

Name: _____

Ext. #: _____ L-Code: _____ Department / Division _____

DESCRIPTION of USE of BUILDING SPACE (attach statement of work, if necessary):

IS BUILDING MODIFICATION PROPOSED? (YES/NO) If yes, give details.

☐ Standard ES&H RRAs from Document 2.1 apply to this space lease.

☐ Special ES&H RRAs (attached) apply to this space lease.

IWS or OSP REQUIRED? (YES/NO)

ES&H reviews, if required, will be done by the ES&H Team supporting the facility or area where the work is to be performed. The ES&H Team providing support is Team ____.

Account number provided for the following services:

*Space recharge and electricity will allow split of account #'s

Space Charge: _____ - _____ % _____ Electricity: _____ - _____
Space Charge: _____ - _____ % _____ Electricity: _____ - _____

Other Services: _____ - _____ Specify _____

Tenant RI: _____ Date: _____

Tenant

Resource Manager: _____ Date: _____

Tenant

Senior Manager: _____ Date: _____

AD Facility Manager,

Landlord: _____ Date: _____

Resource Manager,

Landlord: _____ Date: _____

Appendix C

Program/Project Delegation Form

The _____ Directorate delegates all of the roles, responsibilities, and authorities (including the primary ES&H responsibilities listed in, Document 2.1, "Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management," Sections 1.4.2, 1.3.4, and 1.3.5 in the *ES&H Manual*) for the performance of the _____ Program/Project to the _____ Directorate. The Statement of Work is attached. Use the account number _____.

Associate Director Date

Delegating Directorate

Associate Director Date

Accepting Directorate

Appendix D

Hazardous Waste Management Technician Services

The ES&H RRAs for the services provided by the Hazardous Waste Technicians are slightly different from the regular services, listed in Section 4.3. These RRAs, for both the service requester and the service provider, are listed in this Appendix. The purpose of this appendix is to provide the standard RRAs that apply to most of this type of work. If this set of RRAs is used, an MOU is not required. However, the scope of work, level of effort, and account number(s) to be used shall be reviewed and documented at least annually. Each directorate shall designate at least one person, familiar with hazardous waste management issues and authorized to commit funds, to conduct this annual review with Hazardous Waste Management (HWM), and to serve as the point of contact for waste issues that might arise. Other divisions of responsibilities may be used and documented.

The characteristics of HWM services are listed below:

- a. There is no defined end point for the service. Service is either provided on an on-going basis or as needed.
- b. Work is performed either at the service provider's facility, or at the requester's facility and/or a combination of both.
- c. Service is an institutional requirement.
- d. There may be a prescribed or negotiated fee for part of the service.
- e. Some work is performed by the client or his or her designees.

D.1 The Associate Director (AD) of the client authorizing organization requesting HWM services is responsible for:

- Providing knowledgeable, properly trained individuals to accurately identify the waste generation process and expected waste components.
- Ensuring that a client Responsible Individual (RI) is appointed for the HWM services that are being requested.
- Assuring that the program is complying with the LLNL Waste Acceptance Criteria (WAC).
- Assuring that the Satellite Accumulation Areas (SAA) is maintained.

D.2 The requesting client RI is responsible for:

- Contacting HWM one week prior to completely filling a waste container, or as the time limit for waste removal is approached. This is particularly important for retention tanks.
- Providing notification to the HWM Waste Generator Services group leader of new waste generating processes prior to the start of work.
- Identifying known or potential workplace hazards for each room, laboratory, retention tank, etc. and conveying the hazard information to the HWM Division Leader or designee to allow him or her to ensure that only properly trained HWM employees are provided.
- Identifying applicable programmatic procedures that apply to HWM operations (i.e., FSPs, OSPs, SOP). Conveying training requirements (e.g. explosives waste or TRU waste training) for HWM service personnel to the HWM Division Leader or designee.
- Providing appropriate operating procedures when required (e.g., retention tank operating plans or SOPs) and, when appropriate, OJT to assure HWM personnel can operate client owned equipment safely, when services require HWM to understand and operate client owned processes or equipment.
- Identifying special training requirements (e.g., training for uranium or explosives handlers).
- Ensuring a safe work environment for the HWM technician when he/she is working in their area of responsibility. This may include providing a knowledgeable individual to accurately identify the waste generation process, expected waste components, and their hazardous, mixed or radioactive characteristics, and providing a knowledgeable person to work with the HWM technician when two people are required for certain operations.
- Arranging for any facility access controls or conduct-of-operations controls that might be required.
- Characterizing waste for the HWM technician by process knowledge, if possible. If process knowledge can not be used, the waste shall be analyzed.
- Signing waste requisitions or formally delegating signature authority to a qualified designee.

D.3 The Cognizant HWM group leader is responsible for:

- Providing trained personnel to assist generators with hazardous, mixed, and radioactive waste compliance issues (to include guidance in compatibility, segregation, and packaging), characterization of waste and maintenance of waste profile systems.
- Addressing hazards associated with the HWM technician's work activity. Integrating work location hazards and work activity hazards, and developing and implementing appropriate waste handling and management controls for that set of combined hazards.
- Performing waste sampling, field analysis, WAA management, and retention tank management activities under the auspices of a generic Integration Work Sheet, which will be sent electronically to appropriate FPOCs for annual facility concurrence. Thereafter, the work will be conducted on a routine basis in each of the authorized facilities.
- Providing HWM technician support to the LLNL Space Action Team (SAT) to perform field labpacking operations and equipment removal and decontamination.
- Providing retention tank management, Waste Accumulation Area (WAA) operations (including transport of waste containers to WAA or Consolidation WAA), and any required waste sampling and/or field analyses.
- Distributing new waste containers, labels, and waste disposal requisitions.
- Providing qualification training to waste generators.

HWM will provide special project support on a case-by-case basis with prior agreement by both parties.

D.4 Interconnected Responsibilities

In some cases, the programmatic authorizing organization and HWM have interconnected responsibilities for an operation.

D.4.1 Waste Water Retention Tank Systems

- The program or facility authorizing organization (the tank system owner) is responsible for managing what goes into the retention tank. The client RI shall write the tank operating plan or specify the controls in a safety plan for the tank system.
- The owner is responsible for the maintenance of the retention tank system.

- HWM shall review and concur with the tank operating plan (or equivalent), following concurrence with the FPOC.
- HWM is responsible for sampling the tank contents and then disposing of the contents.

Appendix E

ADFM and FPOC Relationships

Key to implementing the LLNL Integrated Safety Management System is employees' understanding of environmental, safety, and health RRAs in regard to Laboratory facilities. The information presented here was developed to aid this understanding. It includes typical job descriptions for AD facility managers and facility points-of-contact and a diagram showing the LLNL facility management chain. Table E-1 shows which function in the chain is responsible for various ES&H activities, and the last section shows what training is required.

AD Facility Manager (ADFM)

The AD Facility Manager provides direction for the management of all directorate facilities, and is the point of contact for all directorate facility-related matters. Primary interactions are with applicable program, project, directorate, and institutional personnel. The ADFM works closely with the directorate assurance office to provide consistent implementation of planning, policy, and structure of the ES&H program in the directorate's facilities.

Directorates may assign the ADFM function to suit its needs but, in general, the ADFM function includes the following:

- Manages and is responsible for interactions with Space and Site Planning and the Institutional Facility Manager's office; develops directorate Area Plan; handles acquisition and return of facilities to the institution; ensures representation of directorate at the LLNL Space Coordination meeting.
- Advises directorate management on facility issues and recommends actions including, but not limited to, facility renovation and consolidation.
- Acts as primary point-of-contact with Plant Engineering for facility structural modifications, equipment replacement and upgrade, maintenance planning, seismic up-grades, and new construction.
- Supervises the facility operations staff, providing work direction and training and mentoring as necessary.
- Represents the directorate on the Site Planning and Capital Assets Management Working Group.
- Acts as primary contact with the Fire Department on fire protection systems.
- Prepares and implements a three-year maintenance plan for directorate facilities.

- Prepares and champions proposals for line item and General Plant Projects (GPP) funding.
- Provides oversight of GPP and facility-related Institutional General Purpose Equipment.
- Prepares budgets and oversees spending for directorate facility complexes.
- Appoints FPOCs (when delegated from the Facility AD) for each facility and identifies responsibilities.
- May concur with all WAL 2 and above work before that work can proceed in the facility, or may delegate to a subordinate FM or to an FPOC

Facility Point-of-Contact (FPOC)

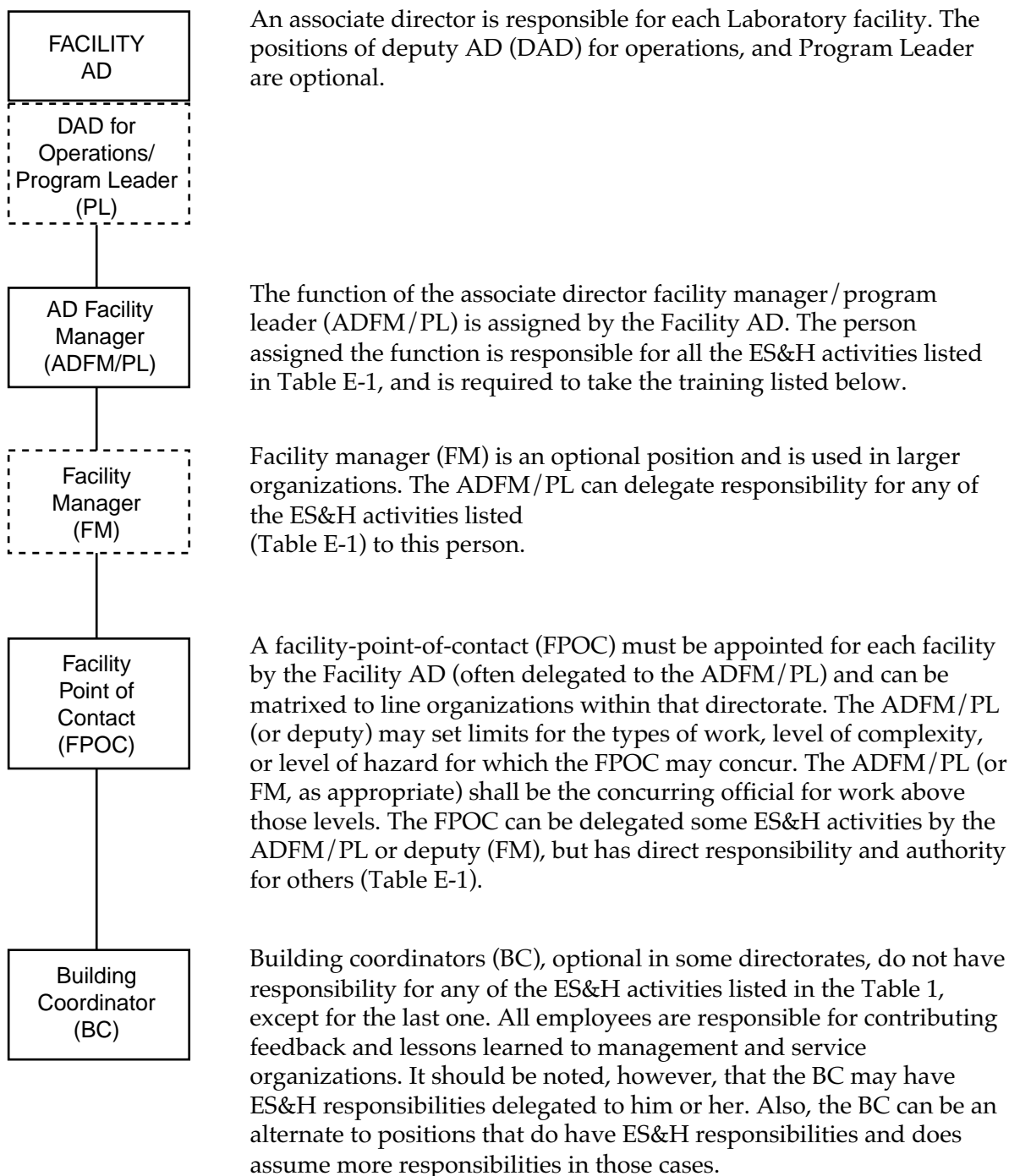
The FPOC is responsible for, and oversees, the operation of LLNL facilities (but not the Programmatic activities conducted within the facility) to ensure proper and efficient operation. This person is the “Responsible Individual” for concurring with and permitting all facility modifications, and for any potentially hazardous facility related activities.

The FPOC has a thorough knowledge of LLNL’s Integrated Safety Management System, and ES&H, Security, and Waste Management policies and procedures. The FPOC is responsible for facilities which can house re-search, administrative, and/or support personnel. Directorates may tailor the job of FPOC to suit its needs but, in general, the FPOC does the following:

- Acts as the interface between personnel who will be working in the facility and Facility Management, and is responsible for identifying hazards associated with the work location and communicating them to the responsible work management chain.
- Responsible for communicating and overseeing facility related controls with work activities of Plant Engineering and other service organizations or outside contractors within the building and related support facilities. Will provide communication to facility residents and the management chain regarding the impact of this work.
- Concurs (as delegated) that work can proceed in the facility.
- Acts as the resident point-of-contact for all design criteria, construction, and facility improvements.

- For facility-related projects, originates and reviews work requests, prepares scope of work criteria, schedules, projects cost estimates, and conducts pre-start reviews as needed in order to concur that the work can be performed safely in the facility.
- Reviews facility-related work orders, purchase requisitions, blanket orders, and serves as a point-of-contact for the coordination of maintenance schedules, systems status procedures, and utility outages.
- Monitors work activities to ensure that there are no hazard or unacceptable collateral effects to facility occupants during the performance of work.
- Ensures that the appropriate level of post-maintenance testing is performed on facility related equipment to verify equipment and systems function properly.
- Performs facility hazards assessments and applies LLNL safety and environmental guidelines and procedures, and serves as a key member of a building,s emergency response team.
- May interact with Safeguards and Security, Plant Engineering, Hazards Control, Environmental Protection, Business Operations, outside vendors, and contractors.
- Contributes feedback and lessons learned to management and service organizations.

LLNL Facility Management Chain



Note: There can be alternates assigned to each of these positions. Alternates required the same qualifications and training as the person holding the position.

Compensatory Measure: In cases where an individual holding a position below ADFM is not fully qualified or has not taken the required training, either the ES&H Team, or the qualified individual in the facilities chain directly above him or her, will provide guidance and assistance in assessing workplace hazards and necessary control.

Table E-1. ISM Roles, Responsibilities, and Authorities for Facility Management

The ADFM/PL is responsible for all ES&H activities listed in the left-hand column. (This is the combined ADFM and FPOC list from sections 3.7 & 3.8.) Right-hand columns show other positions in the facility management chain (Facility Manager = FM; Facility-Point-Of-Contact = FPOC; Building Coordinator = BC; and

- The activities for which they have responsibility (R),
- Activities which can be delegated to them (D),
- Activities for which they have no responsibility (NR).

ADFM/PL is responsible for these ES&H activities	FM	FPOC	BC
Ensuring that LLNL facilities are operated and maintained in a safe and efficient manner.	D	D	NR
Preparing FSPs, reviewing and concurring with the approval of OSPs; and implementing facility-related requirements specified in OSPs, FSPs, and Laboratory <i>ES&H Manual</i> .	D	NR	NR
Assuring that workers working within the facility comply with facility-specific requirements, including training requirements.	D	D	NR
Participating in the self-assessment plan for the facility and ensuring that the necessary corrective actions are taken.	D	D	NR
Reviewing ES&H Integration Work Sheets (IWS) (see Document 2.2) for compliance with facility related requirements, (e.g., those in the <i>ES&H Manual</i> , FSPs, Technical Safety Requirements, OSPs) and ensuring compatibility between different operations within a given facility	D	R	NR
Evaluating proposed operational or activity changes against the facility's existing ES&H documentation (e.g., the authorization basis).	D	R	NR
Communicating facility-related ES&H requirements to building residents and visitors, as appropriate.	D	D	NR
Act as the interface between personnel who will be working in the facility and Facility Management.	D	R	NR
Concurring that work can be safely performed in the facility.	D	R	NR
Identifying hazards associated with the work location and communicating them to the responsible work management chain.	D	R	NR
Establishing and appropriately communicating to facility residents and the responsible management chain any facility controls and special conditions, including unacceptable collateral effects, that might be associated with the proposed work.	D	R	NR
Coordinating utility and building system shutdowns with occupants to minimize disruption to ongoing operations.	D	R	NR
Coordinating system status procedures, if applicable	D	R	NR
Participating in pre-start review of the work, when one is conducted.	D	R	NR
Concurring that work may proceed in that building, prior to it beginning.	D	R	NR
Monitoring work activities to assure that there is no hazard or unacceptable collateral effects to the facility or other occupants.	D	R	NR
Ensure that the appropriate level of post-maintenance testing is performed to verify that the equipment functions properly. This is particularly important for safety systems, structures, and components.	D	R	NR
Contribute feedback and lessons learned to management.	R	R	R

AD Facility Manager and Facility Point-of-Contact Training

Facility points-of-contact (FPOC) should have more than two (but preferably more than five) years of experience in facility maintenance, operations, and management.

Each FPOC is required to complete:

- A briefing on the roles, responsibilities, and authorities of a FPOC as defined in Section 3.8 of this document.
- Appropriate elements of the ADFM Training Course to become familiar with maintenance and construction processes and procedures and any potentially hazardous aspects of having others do work in his or her assigned facilities. The ADFMs will determine the appropriate elements.

Each ADFM and FPOC is required to complete:

- A core ES&H curriculum to provide knowledge of the inherent or operational hazards associated with his or her assignment. The core ES&H curriculum consists of the following courses:
- EM2010, "Occurrence Reporting"
- EP0006 (and EP0006R) Hazardous Waste Generation and Certification
- EP7034-01-W Storm Water Pollution Prevention Plan Overview
- HS1610 Fire Department Operations
- HS1670-CBT Qualification for Fire Extinguisher Users
- HS4261-W Lead Awareness
- HS4420 Asbestos Safety
- HS5220-W Electrical Hazards Awareness
- HS5245-CBT Lockout and Tag
- HS5300 Back Care Workshop
- HS5310-CBT Video Display Terminal Ergonomics
- HS5315-CBT Office Safety
- HS5500 Seismic Safety
- IS0004-W FPOC Roles and Responsibilities
- IS0010 Conducting Pre-start Reviews

Additional courses may be needed depending upon specific hazards within the FPOC's areas of responsibility or as directed by the safety envelope of the facility. The AD facility manager, with appropriate input from the assurance manager and Hazards Control, will make this decision. Subject areas that may be covered by these courses are confined space, pressure systems, lasers, capacitors, cranes, radiation, criticality, biohazards, etc. Alternate courses (when available) are listed in the LLNL Course Catalog.